American Gas Association MONTHLY

Dehydration of Vegetables

•

New National Gas Advertising

•

Employee Rotation Program

•

Gas Industry and the Weather

•

Natural Gasoline Enrichment

September 1943

VOLUME XXV NUMBER 9

"...and I'd clap my hands and dinner would be ready..."

WOULDN'T it be wonderful if cooking were as easy as that? Haven't you wished it a thousand times?

Wishes almost as fabulous *are coming true* . . . tomorrow!

For in the laboratories of the Gas industry, engineers are developing plans to make your own home as wondrous as a magic castle . . .

There'll be amazing Certified Performance Gas ranges that "do everything but put dinner on the table" . . . Gas refrigerators and water heaters that perform a hundred miracles to make life easier, more enjoyable . . . house heating and air conditioning that make your home as cool as the mountains in summer, as balmy as the tropics in winter . . . without a lick of work from you.

Today, the tiny, blue Gas flame that will make all this possible is working to speed Victory. Use it wisely.

But tomorrow this same blue flame will transform your home — be it large or small — into a happier, healthier, more *economical* place to live.

Isn't this something worth saving for — with every War Bond you can buy?

AMERICAN GAS ASSOCIATION

THE FLAME THAT WILL BRIGHTEN YOUR FUTURE . . . . . GAS

Initial advertisement in the gas industry's national advertising program for 1943-44. It will appear in the Saturday Evening Post *for October 16, the October issue of* American Home *and the November issues of* Ladies' Home Journal *and* Better Homes and Gardens

American Gas Association MONTHLY

CONTENTS FOR SEPTEMBER 1943

This issue is on sound ground. It starts out with the well-known gregarious instincts of the gas man and progresses to such subjects of universal interest as: food, work, the weather, building, and advertising. . . . Speaking of advertising, those new ads in the national campaign represent a radical but refreshing departure from the war theme ads that have surfeited the public print ad nauseum. *We have had much fine war copy but enough is enough. . . . There has been considerable loose talk about domestic food dehydration and the A. G. A. Laboratories' findings should go a long way toward clearing up the picture. . . . Junior employees of budding promise are now getting the "Merry-Go-Round" in a large utility system. This application of the cadet executive idea is past the experimental stage and bears close attention. . . . Miss Moomaw gives a sidewalk superintendent's view of a big pipe-laying job. It's a novel approach to an oft-repeated but ever-new story in the gas industry. . . . Old man weather has been rolling along all these years. Now the gas industry proposes to plot his course and draw helpful conclusions. Mr. Little's scholarly article sheds new light on an old subject.*

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SUBSCRIPTION · $3.00 A YEAR

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THE GAS INDUSTRY IN BRITAIN. One of a series of striking photographs taken by the British Council. It shows the towers in which the unpurified gas is cooled when it comes from the retorts.

American Gas Association MONTHLY

JAMES M. BEALL, *Editor*

ANNUAL MEETING
. . . War Developments to Dominate A.G.A. Program

HOW can the gas industry more effectively serve the nation at war?

In what additional ways can we encourage the constructive use of our product to conserve fuel, to supply war industry and to support essential civilian morale?

Are there any further means of adjusting the remaining available manpower or utilizing new sources so as to reach the greatest industry efficiency?

What more can we do to increase, preserve and conserve the food supply for our armed forces and our civilian population?

What can the industry do without diverting energies from the war effort to be ready to meet the changed demands and opportunities to contribute to the general welfare during the post-war period?

These and other questions of similar import are to be asked and answered at the Twenty-fifth Annual Meeting of the American Gas Association in St. Louis, Mo., October 11, 12 and 13. Coming at a time when the United Nations are on the threshold of a great offensive and approaching the complete transition from peace to war, it will be by all odds the most important gathering of the Association in decades. It will do much to plot the industry's course in the stormy days ahead and the eventful era to follow.

•

Commemorating the Silver Anniversary of the founding of the American Gas Association and a quarter century of industry teamwork, a special ceremony is tentatively planned for the meeting. Organized in June, 1918, to meet the problems of the first World War, it is noteworthy that the Association today faces the same problems on a magnified scale that it did 25 years ago. The industry's steadfast purpose now is the same as that voiced in 1918 by George B. Cortelyou, first president of the Association:

"From the beginning of the world conflict, the gas industry has put its forces and its facilities at the call of the government without selfish purpose or expectation of gain. It has already rendered incalculable service, as the official records at Washington will attest. It will continue to do so and will keep step with other legions of American business, in support of the government at Washington and of our fighting men across the seas."

While the program is not finally laid out and must be governed somewhat by last-minute events, discussions are proceeding between members of the General Sessions Program Committee, and constructive suggestions are under consideration by Chairman Harry K. Wrench. It is now expected that there will be two general luncheons with addresses on wartime regulations and on wartime personnel problems. These will be held Tuesday, October 12, and Wednesday, October 13. The first general session will follow the Tuesday luncheon and additional general sessions will take place Wednesday morning and afternoon. The Home Service Breakfast will be held Wednesday. In keeping with the times, no entertainment functions are planned.

•

Arthur F. Bridge, president of the Association and vice-president and general manager of the Southern Counties Gas Co., Los Angeles, will preside at the general sessions. Ernest R. Acker, chairman of the Committee on War Activities and presidential nominee, and other notable gas industry men are expected to take a prominent part in the proceedings.

Awards for distinguished service to the gas industry will be a highlight of the meeting. These include the Charles A. Munroe Award, the Beal Medal, the A. G. A. Meritorious Service Medal, the McCall Awards and the Million-Man-Hour Awards for accident prevention.

A meeting of the Natural Gas Section will be held Monday morning, October 11. Meetings of the Accounting, Industrial and Commercial Gas, Residential, and Tech-

nical Sections will take place on Monday afternoon and Tuesday morning. Also a number of committees will conserve time and travel by taking advantage of the presence of the delegates to attend committee meetings.

While all meetings will be held at the Hotel Jefferson, nearby hotels will be available to the gas industry delegates.

Natural Gas

The natural gas industry with its heritage of enterprise and daring is making a tremendous contribution to the war effort by supplying this vital fuel to countless war industries. Despite the limitations of manpower and materials with which to distribute its product, the industry is determined to make its maximum contribution to the war and is working hand-in-hand with government agencies to that end. How it has met its problems in unprecedented fashion and what it proposes to do to enhance its war effort are matters to come before the annual meeting Monday morning, October 11.

Under the direction of Burt R. Bay, chairman of the Natural Gas Section and president of the Northern Natural Gas Co., Omaha, a program of timely interest and value is rapidly taking shape. Representatives of industry and government will speak on the most urgent problems and a new slate of officers will be elected. A special feature of this meeting will be the presentation of honorary memberships to pioneer natural gas men.

Accounting

The Accounting Section will hold its regular annual business meeting Monday at 11 o'clock at which time L. A. Mayo, chairman, of the Connecticut Light and Power Company, Hartford, will review the year's work, and officers will be elected for the ensuing year. All those attending will get together at 12:30 P.M. for an informal luncheon and discussion of current problems. At 2:30 P.M. the General Accountants and the Customer Accountants will hold general group meetings for discussion of problems and subjects common to all those in each group. Tuesday morning eight parallel group meetings have been arranged to discuss Credits, Collections, Meter Reading, Personnel Problems, Taxes, Property Records, Materials and Supplies and other accounting problems.

A Compliment

(*The Gas Times,* London, May 15)

"All the more reason for urgency in setting up a sound British Gas Association. In point of fact we could very well have taken the American Gas Association as the model for our own set-up, with few, if any, variations."

Industrial and Commercial Gas

Industrial and commercial gas men, equipment manufacturers and others interested in non-residential gas and appliances will get together on Monday at the Industrial and Commercial Gas Luncheon. The luncheon will be followed by a business and technical session that will take the entire afternoon. This part of the meeting will be in charge of Chairman Ben H. Gardner of Columbus, Ohio and Vice-Chairman Charles G. Young, of Springfield, Mass. The program was prepared by a committee headed by Franklin T. Rainey, sales promotion manager of The Ohio Fuel Gas Company.

The keynote at the luncheon will be "The Industrial and Commercial Gas Outlook for the Remainder of the War Period." Two sets of problems as they affect industrial and commercial gas will be carefully considered at the meeting: first, the problems related to the use of gas in war production and wartime civilian production and in hotels and restaurants in wartime; second, is the important field of reconversion of industrial and commercial heating processes to a peacetime economy and the competitive, engineering and sales problems to be faced when that reconversion takes place.

A highlight of the session will be an illustrated paper on "The Revolution in Industrial Heating." The vast war production program has not only laid the foundation for the greatest industrial heating revolution ever experienced, it has actually launched that revolution. All industrial gas men have sensed it, and some have begun to realize and analyze its far-reaching effects. Every utility man and manufacturer will get plenty of thought-provoking material from this paper.

"Food Service Plans for the Post War Period," another subject of number one importance to every gas company, will be ably handled. Coverage of this subject will include material prepared by the Section's Food Service Equipment Committee.

Major subjects will be supplemented by the popular "Industrial and Commercial Gas Round Table." The variety of subjects covered and the thoroughness of the discussions make this a most interesting and valuable feature.

Discussion will follow each paper and report—even those reports which are abstracted. Included in the latter group is the subject of aluminum and magnesium heat-treating on which committee work has produced additional new material this year.

The Managing Committee of the Industrial and Commercial Gas Section and several other committees of the Section will meet during the Annual Meeting.

Residential

The Residential Section meeting, which will be devoted to war and postwar sales activities in the residential field, will be held on Tuesday, October 12, from 10 A.M. to 12 noon. This meeting, featuring addresses by nationally known gas company and appliance manufacturer executives, has been designed to be of particular interest and importance to the industry's sales personnel.

Included on the program will be such topics as "How Will We Sell Gas Tomorrow"? presented by the president of a Midwestern company. This presentation will cover sales management, organization, training and promotion.

"Who Accepts Responsibility for Industry Progress?" is the provocative question to be analyzed by one of the country's largest gas appliance manufacturers. Another problem of current interest, the probable trends in appliance sales and promotion after the war, will be discussed by the executive of a large natural gas company under the title of "Who Will Sell What?".

An address by the vice-president of a large manufactured gas utility, disclosing how this company has oper-

ated under wartime conditions and is preparing for the future, will complete the program.

The meeting will be held under the joint direction of B. A. Seiple, vice-president of the Jersey Central Power & Light Co., Asbury Park, New Jersey, present chairman of the Residential Section, and C. V. Sorenson, supervisor of new business, Midland Utilities Co., Hammond, Indiana, incoming chairman.

Technical

Mindful of the words of Mr. Acker, chairman of the Committee on War Activities, that "the war in which we are so fully and unequivocally engaged is a technicians' war," officers of the Technical Section have keyed their program to war developments. Two sessions will be held, the first, Monday afternoon, and the second, Tuesday morning.

Harold L. Gaidry, of New Orleans Public Service Inc., chairman, will open the meeting with a review of the Section's activities during the year. The latest advances in gas production, distribution and chemistry including the work of important committees, will be covered by able speakers. Reports on research projects such as mixed gas, organic sulphur, and water gas will be made at this time.

Among the topics tentatively arranged for presentation are: "High Temperature Gasification," "Storage of Oil," and "Motor Vehicles and Emergency Conditions." It is also expected to have a symposium on post-war planning with Charles F. Turner, vice-chairman, Technical Section, presiding.

Of particular interest to distribution men will be a symposium on distribution studies embracing such subjects as "Tin in Solder," "Microbiological Anaerobic Corrosion," and "Dissimilar Metals." This symposium will be led by H. B. Andersen, chairman of the Distribution Committee.

INCONTESTABLE

Time for July 19 records the divorce suit in Chicago of Mrs. Alice Mischal on the ground her husband would not let her cook with gas. Naturally she won the divorce.

Nation-Wide Stove Rationing Begins

THE plan for nation-wide rationing of domestic heating and cooking stoves designed to burn gas, coal, wood or oil was scheduled to go into effect August 24, the Office of Price Administration announced August 19, with the issuance of new stove rationing regulations (Ration Order 9A). Beginning that date all consumer purchases of rationed stoves must be made with a certificate obtainable at a War Price and Rationing Board.

Any consumer who needs a stove for cooking and who has no equipment for that purpose, or who has only equipment which is worn out or damaged and cannot be repaired within a reasonable time or at a reasonable cost, may be given a certificate for any type of cooking stove.

OPA also announced the complete timetable for instituting this new program and gave details of trade operations under the plan which supplants the present rationing of coal and wood heating stoves in 32 states and the District of Columbia where fuel oil is rationed. Important dates, affecting primarily trade operations under the nation-wide plan to assure distribution of the limited number of available new stoves to users needing them most, follow:

August 24—New stove rationing plan effective. Consumers must obtain certificates from War Price and Rationing Boards before buying stoves. Old certificates used in previous stove-rationed areas no longer valid.

September 1—Beginning this date all orders accepted by manufacturers, distributors or dealers must be accompanied by certificates except for orders by or through exempt Federal Agencies which must be based on WPB priority evidence. September 1, 2 and 3—Dealers and distributors throughout the United States must register at War Price and Rationing Boards. This includes dealers and distributors in areas previously rationed.

September 3—Last day that dealers and distributors can sell rationed stoves without having filed registration statement with their Ration Board.

September 15—Last day that rationed stoves may be transferred on certificate credit by manufacturers and distributors. No certificate credit may be given to consumers. All orders on the books of manufacturers and distributors received before September 1 must have been shipped, covered by certificates, or cancelled.

September 30—Last day for distributors collecting certificates on shipments made on certificate credit.

October 7—Last day for manufacturers collecting certificates due on shipments made on certificate credit.

Thus, all operations relative to inaugurating the plan will be completed by the trade by October 7, OPA pointed out.

A. G. A. War Work Commended

THE American Gas Association Testing Laboratories have completed important war work with "unusual efficiency and dispatch" according to Government authorities in charge of the program. In a letter to Arthur F. Bridge, president of the Association, dated July 23, Dr. James B. Conant, acting director, Office of Scientific Research and Development, Washington, D. C., comments as follows:

> "For approximately a year the American Gas Association Testing Laboratories have been carrying out a program of studies of subjects of military importance referred to them by the National Defense Research Committee. I am told by Dr. Thornton C. Fry, who has been our authorized representative in supervising these studies, that the work has been performed with unusual efficiency and dispatch.
>
> "Not only have the personnel shown thorough competence in the field of gas engineering, to which the problems belong, they have also resisted to an unusual degree the temptation to undertake the large number of related problems with which they incidentally became acquainted, but which did not constitute a necessary part of the task assigned them. As a result, their work was done rapidly and economically, and I am informed that negotiotions for procurement of the apparatus by our armed forces are already underway.
>
> "I wish to express my appreciation for this important contribution to the effective prosecution of the war."

A. G. A. Past President Dies

Conrad N. Lauer

CONRAD NEWTON LAUER, director and past president of the American Gas Association and chairman of the board of The Philadelphia Gas Works Company, died August 2 at his home "Westlawn" in Penllyn, Pa. He was 73 years old. He became chairman of the board about a year ago after resigning as president because of ill health.

An outstanding figure in the gas industry for many years, Mr. Lauer was also active in financial, educational and scientific organizations. Born in Three Tuns, Montgomery County, Pa., Mr. Lauer attended public and private schools but never went to college. When he was 51 years old Stevens Institute of Technology made him an honorary Master of Engineering, and when he was 71 he received an honorary Doctorate of Laws from the University of Pennsylvania. At Princeton University he was the Cyrus Fogg Brackett Lecturer in 1923 and since then had become secretary of the Guild of Brackett Lecturers.

He began his business career as a time clerk with the Link Belt Company in 1893, advancing to plant superintendent, and staying with the company until 1902. During the next 15 years he was an industrial engineer with Dodge & Day, later Day & Zimmerman, Inc., in which firm he advanced to vice-president. In 1917 he became associated with The Philadelphia Gas Works Company as secretary and general manager, becoming president in 1929. Mr. Lauer was elected a vice-president of The United Gas Improvement Co. in 1929 and in 1938 was elected a director.

He was the author of "Engineering in American Industry" and a frequent contributor to the technical press. He was a member of the Hoover Medal Board of Award which he instituted and endowed, the John Fritz Medal Board of Award and the Vermilye Medal Committee. He had served on the Executive Committee of the Philadelphia Chamber of Commerce and was a member of the Mayor's Zoning Committee.

During the World War, Mr. Lauer served as chairman of the Industrial Committee in Philadelphia, for the second and third Liberty Loan Campaigns and was actively engaged in the fourth and fifth campaigns.

In addition to being president of the American Gas Association in 1938-1939, Mr. Lauer was a member of the Association's Committee to Conduct National Advertising, chairman of the Committee on Market and Economic Research, and a member of the Committee on Association Activities. He was also a member and officer of many other scientific and trade groups. He was a director of numerous large business organizations.

He will be sorely missed in the gas industry.

Still and All—

Despite the welter of Washington,
Much mighty labor is being done
By men whose courage and strength of mind
Routine can't fetter, nor red tape bind;
Big men, little men, working for
One stubborn purpose—to win the war.
And though there's fumbling and waste, it's true,
The drones and loafers are very few.
So though we critics may have our fun
With boobs and bunglers of Washington,
Most of that "bureaucratic mob"
Are pretty earnestly on the job
And doing as well in their modest way
As the rest of the folks in the U. S. A.

—BERTON BRALEY, in *Nation's Business.*

Committees Plan Gas Conservation

THE Natural Gas Division and the Manufactured Gas Division of the Office of War Utilities of the War Production Board have created task committees to assist in planning programs for the conservation of natural gas and manufactured gas to aid the war effort and to promote the cooperation of units of the industry with these plans. These committees are as follows:

Natural Gas Task Committee

B. C. Adams, Chairman—President, The Gas Service Co., Kansas City, Mo.

Major Thomas H. Allen, President, Memphis Light, Gas and Water Division, Memphis, Tenn.

F. M. Banks, Vice-President, Southern California Gas Co., Los Angeles, Calif.

John W. Batten, Vice-President & General Manager, Michigan Consolidated Gas Co., Detroit, Mich.

W. C. Beckjord, Vice-President and General Manager, Columbia Gas & Electric Corp., New York, N. Y.

George M. Parker, General Manager, Mississippi River Fuel Corp., St. Louis, Mo.

J. French Robinson, President, The East Ohio Gas Co., Cleveland, Ohio.

Manufactured Gas Task Committee

Alexander Macomber, Chairman—Director, Manufactured Gas Division, Office of War Utilities, Washington, D. C.

E. R. Acker, Vice-Chairman—President, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.

A. F. Bridge, Vice-Pres., Southern Counties Gas Co., Los Angeles, Calif. (ex-officio)

H. R. Cook, Vice-President, Consolidated Gas Electric Light & Power Company, Baltimore, Md.

E. H. Eacker, Asst. to President, Boston Consolidated Gas Company, Boston, Mass.

C. H. Gueffroy, Asst. to President, Portland Gas & Coke Company, Portland, Oregon.

J. R. A. Hobson, Jr., Director, Dept. of Public Utilities, Richmond, Virginia.

Clifford E. Paige, President, The Brooklyn Union Gas Co., Brooklyn, N. Y.

John C. Parker, Vice-President, Consolidated Edison Co. of New York, Inc., New York, N. Y.

Bruno Rahn, President, Milwaukee Gas Light Company, Milwaukee, Wisc.

C. A. Tattersall, Vice-President, Niagara-Hudson Power Corporation, New York, N. Y.

The Natural Gas Task Committee met in Washington, August 11 and the Manufactured Gas Task Committee met in New York on August 13. Reports on the plans were prepared and submitted to the Office of War Utilities.

Natural Gas Sales at Record Levels

ON the basis of currently available indications, sales of natural gas in 1943 will not only set a new high record but will probably come close to being twice the volume sold in 1929, thus doubling the size of the industry in a period of 15 years. Data available for the first part of this year, J. P. O'Donnell reports in "Oil and Gas Journal," show that sales are running approximately 10 per cent above the level of a year ago. If this rate is continued during the remainder of the year, total natural-gas sales in 1943 will reach 1,945,785,000,000 cu.ft., which would compare with total sales of 993,017,000,000 cu.ft. in 1929.

Growth of the natural-gas industry has been particularly phenomenal in the 5-year period, 1939-43, inclusive. In that period sales rose almost three quarters of a billion cubic feet to a point 60 per cent above the 1938 total.

National Advertising . . . *New Gas*

Campaign Keyed to Challenge of the Future

H. Carl Wolf

By H. Carl Wolf

Chairman, Committee on National Advertising, American Gas Association

WHAT will happen to the gas load when the war is over? How will post-war conditions affect the nearly five billion dollar investment in this industry? These are questions which cannot wait for solution until we are finally faced with post-war conditions. They must be faced squarely today.

Let us take a brief look at some recent history. In 1936 the industry decided to make a nation-wide effort to protect its huge investment and combat competitive inroads into its business by promoting public acceptance of gas as the modern, efficient fuel for domestic, commercial and industrial use.

Seventh Year of Campaign

An advertising campaign was begun in leading national magazines, as well as in many trade publications, and has continued uninterruptedly for the past seven years. It has been based upon the relatively small contribution of 4¢ per meter from contributing companies. Not all companies within the industry have been represented in this constructive and nation-wide effort, although it can be conservatively said that all have benefited by it.

When this national campaign was begun surveys revealed that the public attitude toward gas was rapidly veering to the belief that gas was outmoded, particularly for cooking. The problem was to rebuild the prestige of the gas industry in the eyes of the public and to give renewed encouragement to gas men and dealers in every community, large or small, wherever magazines that influence the lives and habits of American families are read.

Gas cooking—the common denominator of our business, the one universal point of contact with our domestic customers—became the centralized theme. The fact was hammered home in ad after ad that gas ranges were as modern in their operating features and as attractive in appearance as those advertised extensively by competition. In the meantime, house heating, water heating and refrigeration were concurrently promoted. So, also, was the use of gas in those industrial and commercial fields which offered the greatest opportunities for development.

Reaches Half U. S. Homes

For seven years national magazines and business and industrial trade papers have carried the story of gas to the people of America, reaching an audience of well over 15,000,000 families —half the homes of the country. In the industrial and commercial field trade publications and "Business Week" have been used to reach those industries where gas and modern gas equipment meet the requirements of speed and economy in production.

The consumer advertising has been helpful in enabling us to secure millions of lines of widespread publicity favorable to gas in the editorial pages of many leading magazines and newspapers, which has been of enormous help in influencing public opinion favorably toward our fuel and toward modern gas appliances.

These seven years have shown other constructive results. First of all, this cooperative movement has provided the vehicle through which the gas industry has presented itself to the public as a modern, wide-awake and thoroughly progressive industry, without apology as the first in its field. Among other results achieved have been the following:

- An increase of public awareness of the superior design and operating features of modern gas appliances.
- A new respect for the gas industry in the ranks of other industries.
- A stimulus to the morale of the people within the industry and an impetus to more aggressive action.
- Better appreciation of the inherent advantages of gas as a fuel.
- An extension of the industrial and commercial uses of gas.

So much for the past. How about the future? What does it hold for us? What must we do to meet the problems which will shortly be with us, even though the end of the war may not come for a year or more? Every forward-looking industry today has its eye upon the post-war problem. The gas industry with its huge investment and with its active and strongly financed competition cannot afford to fall behind the procession. The record of the past shows that war is unavoidably a time in which drastic changes take place. Industries are born and rise to new vigor. Others lose their place in the accelerated march of progress. We cannot postpone the problem; the choice cannot be left to chance.

Post-War Outlook

When the war comes to an end, America will be faced with a set of conditions such as we have never known before. Some highlights of these conditions as they will affect the gas industry merit our closest attention. As we consider the vast replacement market for appliances of all sorts which will exist in this country when the war is over, let us remember this:

A booming replacement market for gas appliances will not in itself protect the gas load unless we keep ahead of our competition. The real protection of this load demands that gas receive its full share of replacement in the new home market and continued use by industrial

The initial ad in the new series appears on the inside front cover. Above is shown the layout of another ad in the series

and commercial consumers. If the swing toward competitive fuels is intensified when restrictions on appliance and equipment manufacture are lifted, the gas load can be seriously and permanently affected.

How about buying power after the war? It will be heavy, primarily because of the following developments:

There is a great increase in savings, including purchase of war bonds, due to higher incomes.

Debts have largely been paid off, including payments on installment buying.

Restrictions on installment sales will be removed, and the usual custom of buying on time will be resumed.

Labor rates and purchasing power will be high.

Industry will make great efforts to continue high employment level.

People will go to great lengths to buy things they need—and their needs will be great, due to wearing out of automobiles, household appliances, etc.

As the result of these developments, an enormous backlog of demand for new homes is accumulating and will continue to accumulate. The best authorities in the building industry estimate that 1,600,000 new homes will be constructed each year during the decade following the war.

A backlog of demand for replacement of appliances in older homes is likewise accumulating. The accumulated need for domestic cooking appliances if the war in Europe is brought to an end some time in 1944 will be approximately 6,000,000 ranges, based on average pre-war sales.

What kind of an advertising program does the gas industry need at this time? We believe that it must have these three outstanding characteristics:

1. It must be adequate in scope to make a genuine impression on a nation-wide basis.
2. It must combat the glamour which has become associated with electricity in the minds of too many domestic customers.
3. It must be of sufficient impact in the industrial and commercial field to give real assistance in the maintenance of this important part of the gas load in the post-war era.

As we look forward to post-war living, Americans are anticipating an era in which science will contribute as never before to the health, comfort and convenience of living. In a sense, we are expecting miracles—and miracles will doubtless be performed. Gas has the opportunity today to be one of the most outstanding of those miracles. It is capable of doing more for the modern home than any other single fuel. Gas, properly promoted, can and will revolutionize post-war living conditions in every room in the home.

Home of Tomorrow Theme

In line with the above thinking, the Committee on National Advertising at its meeting in Cincinnati, April 26, decided to continue with the present advertising agencies, unanimously approved a continuation of the present program of industrial and commercial gas advertising and adopted as the copy theme of the domestic program for 1943-44, these four outstanding developments:

1. Homes will have an all-year-round ideal climate. Heated by gas in the winter, cooled by gas in the summer . . . with no fuel to order or store. Humidity and temperature controlled by simply moving a tiny lever.
2. Revolutionary gas cookery. Homes will have "miracle cooking" with gas. Today in the research laboratories the gas ranges of tomorrow are being designed. Ranges so different, so revolutionary

PUBLICATION SCHEDULE—CONSUMER NATIONAL ADVERTISEMENTS
(Subject to revision)

	Oct.	*Nov.*	*Dec.*	*Jan.*	*Feb.*	*Mar.*	*April*	*May*	*June*	*July*
Saturday Evening Post	16	13	11		12	18	15	13	17	
Better Homes & Gardens		x		x		x		x		x
American Home	x		x		x		x		x	
Ladies' Home Journal			x		x		x	x		x

that past cooking methods will be outmoded. Ranges made with new materials, plastics, glass and others—with new automatic features, with labor-saving and food-saving devices never offered before.

3. A hot spring on tap! Homes will have a "luxurious hot spring" at the control of the finger-tips. Water at any temperature desired, in any quantity the family needs. Again no fuel problem . . . no service problem! It will simply be there to enjoy . . . for the health, comfort and convenience of the entire family.
4. New magic in refrigeration! Homes will have new and revolutionary silent refrigeration with food preservation never before possible! In addition . . . new ice freezing methods, automatic ice water, new convenience in food storage. Again new materials will be used for beauty, ease and efficiency.

This combination of magic which promises to make life more livable in every room in the house, from the basement to the attic, is the contribution of the cleanest, the most flexible and the most controllable fuel known to man—a fuel susceptible of unlimited future refinements and developments—an ultra-modern fuel.

This is the story which we shall dramatize to our domestic consumers in the coming year of advertising. It is a story of interest to every American who is looking forward today to the important and constructive years when the war is over. It will be of intense interest to everyone planning a new home or improving an old one—to the hundreds of thousands of new brides whose husbands are at war—to the millions of war workers living in makeshift quarters and buying war bonds to build a better life in the future. And it is also this story, interpreted in different terms, that we shall tell to those who head up the industrial and commercial establishments of America.

Constructive Planning Necessary

We believe it is the most constructive planning which the gas industry can do today to maintain the value of its investment as we enter the post-war era, and to give to gas service the modernity and prestige which will be needed if it is to maintain and increase its standing in the highly competitive years that lie ahead.

Elsewhere there is shown the first in a new series of consumer ads.* Some of the factors taken into consideration in the preparation of this advertising include the following:

The new gas equipment of the post-war world is not yet being produced. Part of it may be in the blueprint stage but much of it is not yet even on drawing boards. To attempt to show it in advertising presents definite hazards. To do so is to run the risk of making specific commitments while definite knowledge is still unavailable. Much of the equipment, even if it could be shown, would doubtless be uninteresting in itself. By and large the attempts that have been made to date to depict the imaginary changes which the future will bring in the design of homes, automobiles, etc., have not proved greatly interesting to the public or resulted in high readership.

Furthermore, if we attempt to depict on a factual level the "home of tomorrow" we shall find that our advertising will not be very dissimilar to much that we have done in the past. It will fail to give impetus to the conception of gas as the magic means of bringing about entirely new standards of comfort in modern living.

Under these circumstances it seems clear that a fresh approach should be made to the problem. It should be unhampered by the conventions of past thinking. Accordingly, the new advertising possesses these characteristics:

It depicts the results of gas service rather than the physical means by which this service is rendered.

It does this in a way that gives to gas a quality of magic which it has so far lacked in public consciousness.

* See inside front cover.

Below are shown three typical layouts of the new industrial and commercial gas advertising campaign for 1943-44

It encompasses all of the services which gas renders to the home completely equipped with gas.

It is so vital, alive and interesting that it will make readers sit up and take notice. We must jog or even startle people from their lethargy about gas and their concept of this fuel as old-fashioned.

It is designed to secure the widest possible reading in order that our limited appropriation may have a maximum effect.

It covers the need for gas conservation in a way that will be acceptable to all contributing companies and does its share in promoting the urgent need for savings by the purchase of War Bonds.

The new consumer campaign has been designed with all of these ends in view. It makes a daring but sound effort to lift gas from the humdrum. It paints the future with imagination and humanness and permits us to use that touch of exaggeration which humor and imagination make possible.

Beyond all else, however, it is gas advertising which will be read and remembered in far greater measure than a more conventional approach to the subject would make possible.

Flame of the Future

The slogan for this campaign sums up its entire concept and capitalizes upon the physical identity of gas by making a more positive asset of this symbol than at any time in the past. That slogan is "The Flame That Will Brighten Your Future."

A list of magazines and number of insertions approved by the Committee on National Advertising in conformance with a so-called "minimum plan" to start the 1943-44 program consists of 8 full-page black and white ads in the Saturday Evening Post and 5 each in Better Homes & Gardens, American Home and Ladies' Home Journal. The initial ad will appear in the Saturday Evening Post for October 16 and, if present plans mature, in the October issue of American Home and in the November issue of Better Homes & Gardens. The situation regarding definite publication dates is so tight that the schedule of insertions reproduced elsewhere may have to undergo considerable revision to accommodate restrictions enforced because of paper shortage. It is the committee's desire to add other magazines to the so-called "minimum plan" as the advertising program develops.

A well-balanced publicity activity, collateral to the advertising program, will be carried on as formerly. Ideas for articles will be suggested to the editors of magazines and specially prepared stories and scripts will be released to newspapers and radio stations.

Mats of the national ads will be made available for publication in the local press, thus enabling companies to localize the national message and identify themselves with it. This direct means of tie-in has been widely used by companies ever since the national program was launched seven years ago.

Industrial Gas Campaign

During the advertising year 1943-44, industrial and commercial gas advertising will be keyed definitely to the war program. A series of ads now being developed in detail will combine the prestige story of gas with the offer of service by gas company industrial engineers to help customers obtain maximum efficiency from their present gas equipment. The committee in charge of industrial and commercial gas advertising believes that such engineering service will help customers get greater production out of their present gas equipment and will help in the important task of conserving gas and making present equipment last longer, all of which accomplishments bear directly on the war effort. Copy also will suggest the increasingly important part industrial and commercial gas will take in the post-war period. The committee believes such advertising will be a valuable prestige and good-will builder for the entire gas industry.

Those who are familiar with the vital role that gas fuel has been and is playing in the furtherance of the all-out war effort are fully aware that the war-production story of gas is the most spectacular and the most dramatic story the entire industry has to tell. In the opinion of the advertising committee of the Association's Industrial and Commercial Gas Section the telling of this story widely and consistently will do the industry more lasting good, particularly in the post-war period, than any other approach that can be used.

The committee is now making an intensive study of the various fields in which there is large scale use of industrial and commercial gas and is also looking carefully into the merits of the trade papers which claim leadership in those fields. At the present time the committee is surveying opportunities existing in the fields of metals, ceramics, baking, hotel, restaurant and chain store, hospital and general manufacture. A list of media appears on this page.

The national campaign for 1943-44 is being planned so that any sudden change in the conduct of the war will enable the copy themes of both the domestic and industrial and commercial gas branches to be changed to conform with existing conditions. It is expected that some difficulty may be experienced in obtaining space in certain issues of magazines owing to the paper stringency. But the effort throughout will be to keep keyed to the effective work being done by Alex Beebee's Post-War Planning Committee to the end that the gas industry will contribute its full share to better living tomorrow.

Industrial & Commercial Gas Advertising 1943-44

FIELDS TO BE REACHED

Metals
- The Iron Age
- Steel
- Metals & Alloys
- Metal Progress
- Industrial Heating

Ceramics
- Ceramic Industry
- Glass Industry

Commercial
- Bakers Weekly
- American Restaurant
- Hotel Management
- Modern Hospital

General
- Business Week

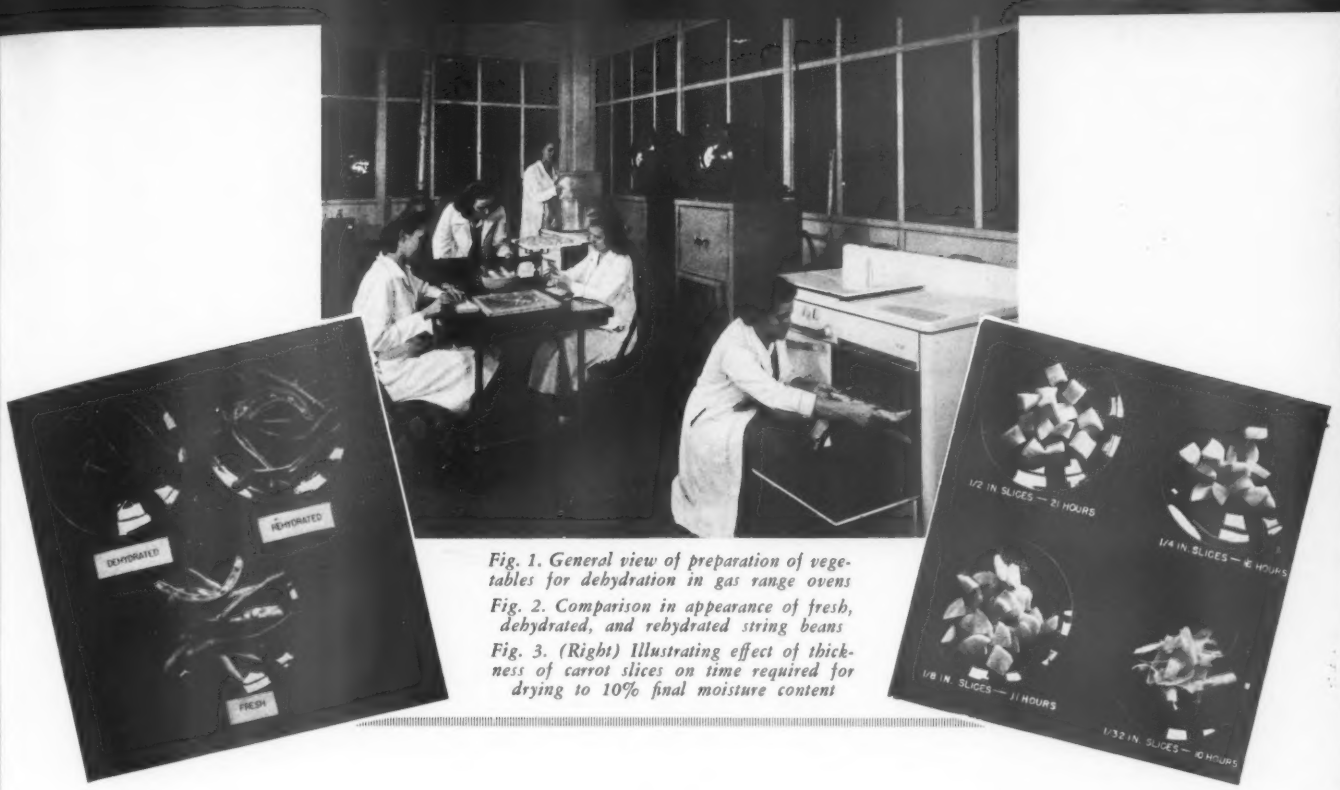


Fig. 1. General view of preparation of vegetables for dehydration in gas range ovens

Fig. 2. Comparison in appearance of fresh, dehydrated, and rehydrated string beans

Fig. 3. (Right) Illustrating effect of thickness of carrot slices on time required for drying to 10% final moisture content

Dehydration of Vegetables in Domestic Gas Range Ovens

By F. E. VANDAVEER
Assistant Director, American Gas Association Testing Laboratories

Project sponsored by Committee on War Activities, American Gas Association
E. R. ACKER, *Chairman*
Under supervision of Residential Section, American Gas Association
B. A. SEIPLE, *Chairman*
JESSIE MCQUEEN, *Home Service Counsellor*

THE critical food situation in wartime and the resultant necessity of preserving the products of countless thousands of victory gardens have brought about the importance of dehydration* as a practical and inexpensive method of food preservation. It supplements home canning, especially for non-acid vegetables and for small amounts of food, and has particular value where pressure canners are not available in adequate number.

One of the most convenient and readily available means of home dehydration is the oven section of domestic gas ranges in everyday use by nearly 18 million families in the United States. This equipment, with a small additional amount of apparatus, can be used safely and effectively for preserving foods by dehydration. As in any cooking process, it is important, however, that the housewife follow proper instructions in the use of such equipment in order to prevent food spoilage which may result from improperly dehydrated foods.

Literature is now available from many sources listing procedures to be followed in food dehydration with gas range ovens. Unfortunately, wide differences in recommended drying times and methods to be employed for various types of vegetables occur in these publications. As a consequence, confusion on the part of the housewife may occur, and what is more important, drying times not adequately identified with specific procedures may be followed with unfavorable results.

In view of this situation, the American Gas Association, through its Committee on War Activities, its Residential Section, its Home Service Counsellor, and its Committee on Domestic Gas Research decided, at the request of A. F. Bridge, President of the Association, to conduct at its Testing Laboratories sufficient research on home dehydration with gas range ovens to reconcile different results presented in existing literature and to provide a recommended procedure which could be safely followed by the housewife. Prior to undertaking this study, Jessie McQueen visited and consulted with a number of gas company home service departments, government bureaus, university authorities, and other food preservation experts.

It might be well to note that dehydration of food has been practiced for generations in the home, and is now a large-scale commercial enterprise. In other words, preservation of food by dehydration is an entirely satisfactory

*The term "dehydration" is used to describe the home drying of food, since it seems to be the nomenclature most commonly employed.

Fig. 4. Illustrating effect of load on tray on drying time. Result of 6 hr. drying with 1 lb. peas in upper tray and 3 lb. in lower tray—trays interchanged and peas stirred every hour. Top tray practically dry

and recognized process. As shown in Fig. 2, little difference in appearance can be observed between the fresh and rehydrated product. To obtain satisfactory results it is only necessary to follow closely, specific procedures proved acceptable by research and experience.

The first problem which confronts the housewife is the preparation of a vegetable prior to its actual dehydration. This preliminary preparation, as demonstrated in Fig. 1, consists of: (1) a blanching operation for the purpose of stopping activity of two common enzymes of plant tissue, namely, catalase and peroxidase (which if allowed to proceed would result in food spoilage in the form of deterioration of taste, color, and vitamin content); and (2) cutting the product into relatively small segments to facilitate the drying process. During studies at the Testing Laboratories, no investigation was made of the effectiveness of blanching of vegetables inasmuch as authoritative data are available on these processes. A summary of selected recommendations for various vegetables is given in Appendix I to this article.

The size and form into which vegetables are cut have a decided effect on the time required for drying. An example of this effect is illustrated in Figs. 3 and 5 on various thicknesses of carrot slices. It will be noted that with carrots sliced ½ in. thick, the time required for drying was approximately twice as long as when the same vegetable was cut to a thickness of 1/32 to ⅛ in. It is therefore highly important that the consumer, in following the recommended drying times shown in Appendix I for various vegetables, be careful to follow also the tabulated procedures for cutting and sizing.

Means of supporting the product to be dried in the gas range oven is another important consideration. It is obvious that it should be placed on a screen or similar material through which warm air can easily circulate. It is recommended that this material be similar to mosquito netting and have openings of approximately ⅛ in. The netting is drawn taut over a light woodwork frame such as that illustrated in Fig. 4 and tacked in place. The entire frame can then be placed on the oven rack. This procedure permits use of the gas range oven with a minimum of supplementary apparatus. However, commercial racks suitable for oven usage can usually be purchased if desired.

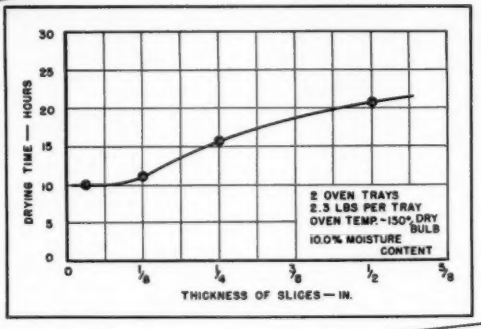


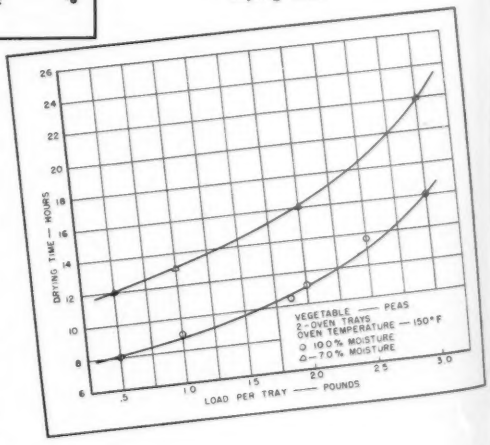
Fig. 5. Effect of thickness of carrot slices on drying time

The quantity of vegetable placed on each rack has a great influence on time required for drying. Importance of the quantity or weight of vegetable placed on each rack is graphically illustrated by the data shown in Fig. 6. It will be noted that the drying period with a 3-lb. load per tray is approximately twice as long as when only one-half the weight of the same vegetable is dried. Correlating all data obtained during investigations at the Testing Laboratories, it may be concluded that not more than 1.25 to 2.25 lbs. of vegetables should be placed on each tray. The drying times shown in Appendix I will not hold if the weight of the vegetable departs appreciably from the recommended values. The weight per rack cannot be considered independently inasmuch as the total oven load is also important.

The effect of total load in the oven is shown by the data in Fig. 7 from which it will be noted that the time required for effective drying of peas varied considerably when the number of racks was increased from one to five with one lb. of peas on each rack. It is also significant to observe that the use of one or two trays with the same rack loading resulted in little difference in drying time.

From these and other data it is recommended that two racks be employed, each with not more than 0.8 to 1.5 lb. of product per sq.ft. placed thereon.* The lower rack should be placed at least 3 in. above the oven bottom and the upper tray at least 2½ in. below the oven top. As much clearance as possible should be allowed between the two racks within these limitations. If a greater number of trays are used, the load per tray should be reduced in proportion. In order to follow the recommended drying times given in Appendix I, the total oven load should not exceed 4.5 lb. and, as indicated, this condition can be most readily satisfied by use of two

Fig. 6. Effect of load per tray on drying time



* See Appendix I for recommended tray and total oven loadings for various vegetables.

trays, each bearing not more than the recommended load.

One of the most important considerations in satisfactorily dehydrating food in the home is the method of oven temperature measurement employed. It would be expected that the higher the temperature, the faster moisture will be evaporated from the vegetable. As a matter of fact, a relatively small change in temperature will bring about a drastic difference in time required for dehydrating to a satisfactory degree of dryness. Bearing in mind that (1) if the temperature exceeds a maximum predetermined value unsatisfactory food quality or actual spoilage due to scorching may result, (2) if too low a temperature is employed the food may sour, (3) the difference between these two limits is only in the neighborhood of 40° F. and (4) the drying time may vary as much as 100% within these temperature limits, the importance of oven temperature measurement may well be appreciated.

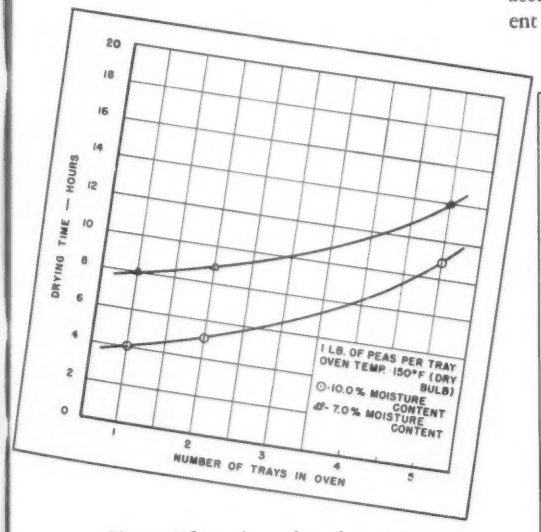

DRYING TIME — HOURS
NUMBER OF TRAYS IN OVEN
1 LB. OF PEAS PER TRAY
OVEN TEMP. 150°F (DRY BULB)
○-10.0% MOISTURE CONTENT
△-7.0% MOISTURE CONTENT

Fig. 7. Effect of number of oven trays on drying time

Data obtained on drying of carrots at various oven temperatures are shown in Fig. 8. These curves illustrate without further comment the importance of oven temperature on time required for satisfactory dehydration. As will be noted from the recommended procedures incorporated in Appendix I, an oven temperature of 150° F. is suggested.* This temperature is that which is observed on an accurate oven or meat thermometer located in the center of the top rack as shown in Fig. 9. If a meat or similar type of thermometer without a base or enclosure is employed, care should be taken that the bulb does not rest on the food being dehydrated, since in this case a lower temperature than that actually existing in the atmosphere surrounding the product would be indicated.

The importance of locating the thermometer at a definite position such as on the top rack is well illustrated by data in Fig. 10. It will be seen that in the same oven at the same time different temperatures will be indicated by accurate thermometers placed at different points. Obviously a specific location must be used so that dehydration times can be based on a common and correct reference temperature. It is not recommended that oven temperature be estimated wholly on the basis of a thermostat setting or turn-down of the gas valve. No particular concern need be felt if the temperature during the first part of the drying period exceeds the recommended limit of 150° F. by a matter of 10 or 15° F. However, during the last 3 or 4 hours of the dehydration period recommended in Appendix I, the indicated temperature should not exceed 150° F. and may without adverse effect fall to 140° F.

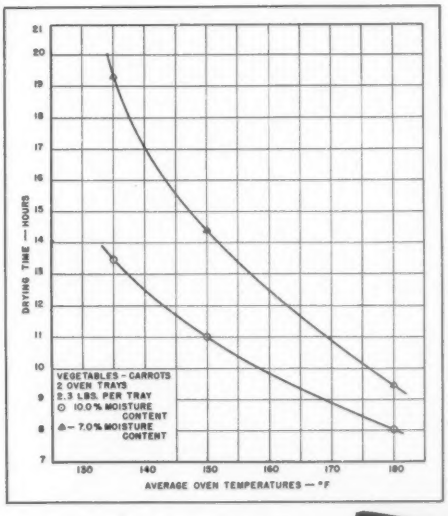

DRYING TIME — HOURS
AVERAGE OVEN TEMPERATURES — °F
VEGETABLES - CARROTS
2 OVEN TRAYS
2.3 LBS. PER TRAY
○ 10.0% MOISTURE CONTENT
△ — 7.0% MOISTURE CONTENT

Fig. 8. Effect of oven temperature on drying time

Closely allied with the temperature prevailing during the dehydration period is the extent to which the oven door is opened, since this latter variable governs to a large extent the velocity of air circulation over the product. As a result of extensive tests, the opening at the top can vary between 4 and 8 in. when measured according to the method indicated in Fig. 12. A length of wood or other object which can be inserted between the oven frame and oven door and which will provide an opening from 4 to 8 in. or more may be employed. It may be noted that from the standpoint of economy the gas consumption did not vary significantly with door openings within the range of 4 to 8 in. Based on data obtained during this investigation the cost of gas would only be about 2 cents for a 10-hr. dehydration period using a total of 38,500 B.t.u. of natural gas at 65 cents per 1000 cu.ft. It is felt, therefore, that the housewife need not be concerned too greatly, either from the standpoints of economy or effective drying, with the magnitude of door opening, pro-

Fig. 9. Illustrating the most convenient and practical method of oven temperature measurement for dehydration tests. Note that bulb of glass stem thermometer is approximately 1 in. above food

* Satisfactory dehydration of vegetables can undoubtedly be obtained under other conditions of temperature and time of operation than those shown in Appendix I. No details are given on other possible temperatures and related procedures since the bulk of data obtained during the underlying investigation was observed with oven temperatures of substantially 150° F.

vided it conforms with the limitations discussed above.

The next question which may occur to the user is when to stir the vegetables and to interchange trays to insure uniformity of drying. From data obtained during extensive tests at the Testing Laboratories, there appears to be no advantage in stirring vegetables or interchanging trays at intervals of less than 2 hrs. It is recommended, therefore, that the food be stirred and the racks interchanged at each 2-hr. interval after starting dehydration.

Humidity Factor

A variable which may affect the dehydration process is the relative humidity of the atmosphere when atmospheric temperatures are exceptionally high. The housewife does not generally have means of measuring this factor, although it is probable that it can be neglected for any but extraordinary weather conditions where both temperature and relative humidity are above 85° F. and 85%, respectively. Effect of extremely high temperatures and humidities is shown in Fig. 11 from which it will be noted that drying times required for relative humidities above 70% increased tremendously when the dry bulb temperature is 100° F.

It is felt that anyone observing closely the recommendations given in the foregoing will obtain, without failure, satisfactory dehydration results if the recommended time intervals given in Appendix I are followed. There is ample evidence showing that dehydration accomplished in this fashion will insure preservation of those vegetables listed for a period of at least six months. However, the personal factor of an experienced operator frequently observing the dehydration process and judging the degree of dryness cannot be minimized in this, as in other food preparation or preservation processes. During the dehydration period the housewife can, by frequent observation, prevent scorching of foods which might occur if the oven temperature increased appreciably beyond recommended values.

At the conclusion of the recommended drying period, the product should be examined with considerable care. It should be borne in mind that there is no danger in impairing the palatability of food or its preservation qualities by allowing it to become too dry. The lower the moisture content the better will be the keeping quality of the finished product. With very little experience, the housewife can judge the finishing point. In general, vegetables should be "bone-dry." They should be brittle and show no moisture in the interior when cut or broken. Various methods are described in the literature for determining when different varieties of vegetables are dehydrated to a sufficient degree. The most positive test for adequate dryness is to place the dried vegetable on a hard surface and strike it with a hammer. If it shatters one can be sure that the dehydration has been carried to a proper end point. If the vegetable does not shatter, dehydration should be continued until this point is reached, regardless of one's feeling that proper oven temperature and all precautions outlined in the foregoing have been observed.

Food Storage

The final consideration in the entire dehydration process is the method of storing the food so that it will not rehydrate over a long period of time. It seems apparent from data obtained from investigations conducted at the Testing Laboratories that vegetables should be stored as soon as possible after dehydration has been completed and determinations made for satisfactory dryness as outlined in the preceding paragraph. Any small container made of metal, crockery, or glass which has a tightly fitting lid or can be sealed with paraffin should be satisfactory for storage. In the event that screw-top containers are employed, a live rubber ring should be used; however, if these are not obtainable, paraffin may be applied to the joint. It is advisable, after initial storage, in a dry and dark place, to observe the contents at frequent intervals. In the event there is any evidence of moisture condensation inside the container or on the product, the contents should be removed and heated in the oven for 15 minutes at 165° F., after which the product should be resealed, taking more care than had been exercised in the first packing.

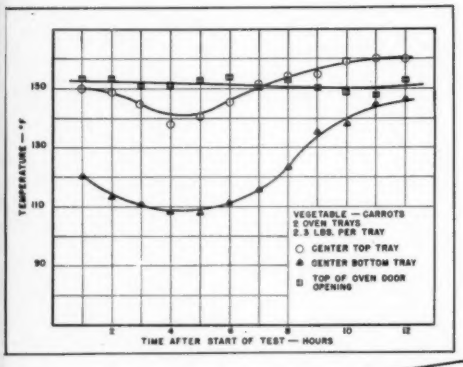


Fig. 10. Effect of thermometer location on indicated oven temperatures

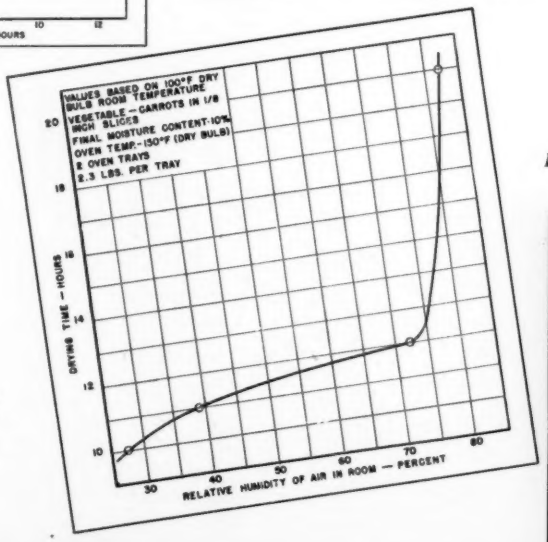


Fig. 11. Effect of humidity of surrounding air on drying time

Fig. 12. Adjusting oven door opening. Total opening 8 in. (1 in. recess to door frame)

Fig. 13. Test set-up for conducting six simultaneous moisture determinations by Bidwell-Sterling toluene method

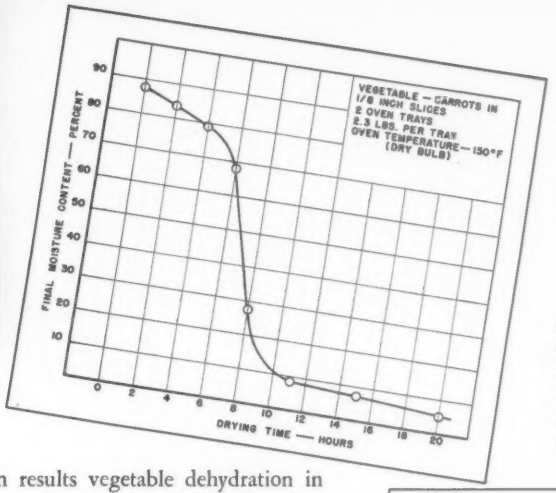
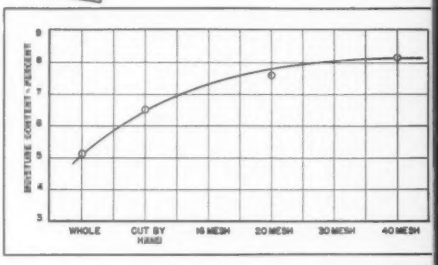

VEGETABLE — CARROTS IN 1/8 INCH SLICES
2 OVEN TRAYS
2.3 LBS. PER TRAY
OVEN TEMPERATURE — 150°F (DRY BULB)
FINAL MOISTURE CONTENT — PERCENT
DRYING TIME — HOURS

Fig. 14. Relation of final moisture content of dehydrated carrots to drying times required

Fig. 15. Effect of particle size on percentage of moisture indicated by Bidwell-Sterling method in 2 hr. distillation period—average results many tests on carrots, string beans and peas



Use of the gas range oven for dehydration is recommended provided the conditions and limitations set forth are observed. The gas industry is generally interested in offering this service for the purpose of conserving vegetables which undoubtedly will be vitally needed during the winter months. It is equally interested in avoiding their improper dehydration. To secure optimum results vegetable dehydration in gas range ovens should be undertaken only with advance knowledge of proper limits and conditions. The principal one of these is that the vegetable should, at the end of the dehydration period, when placed on a hard surface, shatter when struck sharply with a hammer.

To summarize, the following in-

APPENDIX I

COOKBOOK INSTRUCTIONS FOR PREPARATION AND DEHYDRATION OF 11 VEGETABLES IN GAS RANGE OVENS

Product	*Preparation*	*Steaming Time Before Dehydration Min.**	*Tray Loading*		*Drying Temperature °F*	*Average Drying Time-Hrs.*	*Characteristics of Dehydrated Products*
			Pounds Per Sq.Ft.	*Approx. Load Per Oven-Lb.†*			
Beans, green snap	Wash, string, cut in 2-inch lengths, steam.	15–20	1.2	3.6	150	8½–9½	Brittle, dark green
Beets	Wash, trim tops, steam.	30–40	1.5	4.5	150	10–14	Tough to brittle, reddish black
Carrots	Wash, steam, peel, slice ⅛-in. thick.	8–10	1.1	3.3	150	9–14	Brittle, dark orange
Celery	Wash, separate, steam. Cut into ⅛-in. slices.	2–3	1.0	3.0	150	8–10	Tough to brittle
Corn	Husk, silk, steam on cob until milk is set. Cut from cob.	15–20	1.5	4.5	150–160	8–10	Dry and brittle
Parsnips	Wash, steam, peel and slice ⅛-in. strips.	8–10	1.2	3.6	150	9–12	Tough to brittle
Peas	Wash, shell, sort, steam.	8–10	1.2	3.6	150	10–15	Brittle and green
Pumpkin	Wash, peel, remove fibre and seeds. Cut into ⅛-in. slices, steam.	4–6	1.2	3.6	150	10–12	Tough to brittle
Spinach	Trim, wash, steam.	5–6	0.8	2.4	150	10–12	Brittle, dark green
Hubbard Squash	Wash, peel, remove seeds and cut into ⅛-in. slices, steam.	6	1.2	4.5	150	10–12	Tough to brittle
Turnips	Wash, peel, trim, slice, steam.	3–4	1.2	3.6	150	10–12	Tough to brittle

*All vegetables should be steamed until almost tender.
†Based on 2 trays per oven and each tray having an area of 1.5 sq. ft.

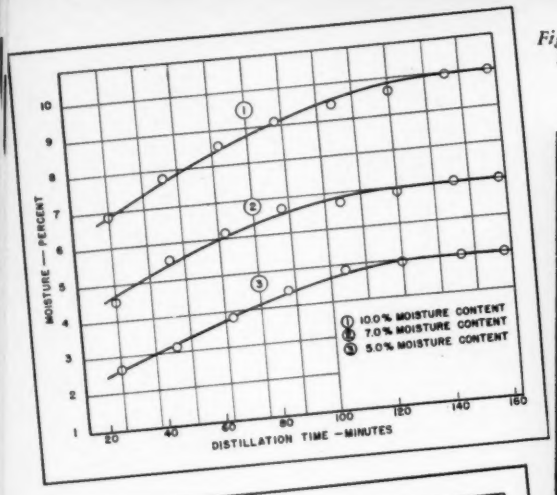


Fig. 16. Effect of distillation time on percentage of moisture indicated by Bidwell-Sterling method—average results of many tests on carrots, string beans and peas

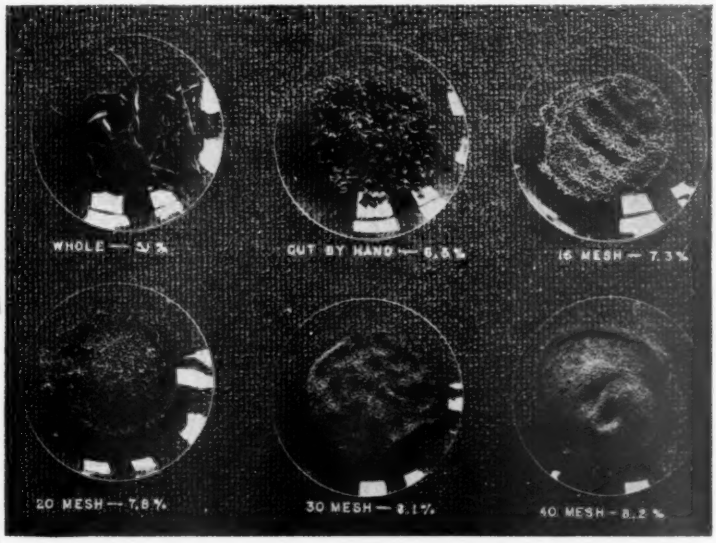


Fig. 17. Illustrating fineness of grinding of dehydrated string beans for comparative moisture determinations by Bidwell-Sterling method

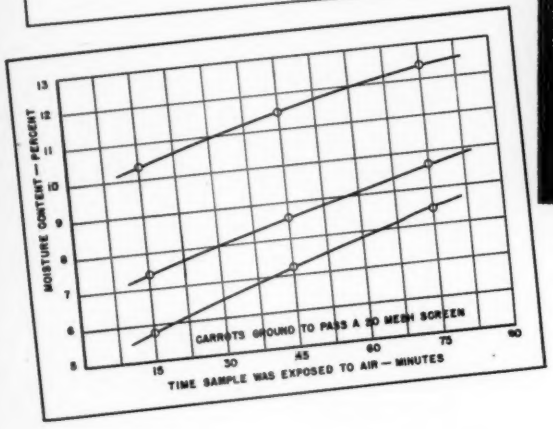


Fig. 18. Increase of moisture content of dehydrated carrots, on exposure to air

structions for dehydration in a gas range oven are listed:

(1) Cut vegetables into slices so that the thickness does not exceed ⅛ in.
(2) Blanch the vegetables as shown in Appendix I. (The external moisture after the vegetable is blanched may be removed by toweling, if desired.)
(3) If two racks are employed, as recommended, the load of vegetable before dehydration should not exceed definite recommended values† evenly distributed. The food should be placed on a netting or coarse mesh cloth or screen. In no case shall the total oven load exceed 4.5 lbs. regardless of the number of racks used.
(4) Locate the two trays in the oven so that the lower one is at least 3 in. above the oven bottom and the upper is not more than 2½ in. below the oven top.
(5) Open the oven door to provide at least 4 in. between the top of the door and front of range.
(6) An accurate oven, meat or similar grade of thermometer must be used. It should be located in the center of the top rack and placed, in the case of a plain bulb type thermometer, so that the bulb will be about 1 in. above the food.
(7) Adjust oven thermostat or oven gas valve, or both, so that a temperature of 150° F. is reached and maintained with oven loaded. A temperature as high as 160 to 165° F. during the first 2 hrs. of drying need cause no concern. A lower temperature of 140 to 150° F. during the last 4 hrs. of drying is preferred to prevent scorching.
(8) Interchange trays and stir food at 2-hr. intervals to insure uniformity of drying.
(9) Several pieces of product taken at various points on both trays should be laid on a hard surface and struck sharply with a hammer. The pieces should shatter. If they do not, dehydration should be continued until a product is obtained that will shatter. Approximate time for drying is given in Appendix I.
(10) Package the dried product immediately in sealed containers.

† See Appendix I.

APPENDIX II
LABORATORY DETERMINATION OF FINAL MOISTURE CONTENT IN DEHYDRATED VEGETABLES

An accurate method of determining final moisture content of a dehydrated vegetable is a prerequisite for controlled laboratory investigation of this process. The necessity for this may be appreciated by reference to Fig. 14 from which it will be seen that when a satisfactory degree of dryness is reached (below 10%) a considerable period of time is required to remove additional moisture. Hence, the need for accurate moisture determination is apparent if recommended dehydration procedures and time requirements are to be reliable.

Two generally accepted procedures of moisture determination in dehydrated vegetables are the Bidwell-Sterling and the vacuum oven methods. The vacuum oven method is supposedly the most accurate; however, some authorities* seem to consider the Bidwell-Sterling method preferable in this respect since it measures only the actual water given off at boiling temperature while the vacuum oven method includes in addition to the moisture all other volatile constituents.

The Bidwell-Sterling method was selected (see Fig. 13) for all moisture determinations in this investigation since it is much faster and employs equipment more readily available. Briefly this method consists of distillation of material under examination in a non-miscible liquid having a boiling point slightly above water and so arranged that the con-

(Continued on page 378)

* The Determination of Moisture by the Distillation Method. A. C. Beckel, A. S. Sharp, R. T. Milner, Ind. & Eng. Chem. Vol. 11, No. 8, Aug. 15, 1939.

Employee Rotation . . . *An Executive Development Program for Supervisory Personnel*

AFTER two years' trial in the technical departments of Consolidated Edison Company of New York, Inc., the Merry-Go-Round—the waggish but descriptive title unofficially applied to the company's executive development program—this month will move into new territory and take on an increased number of employee "riders," according to announcement by Ralph H. Tapscott, president.

Providing for the systematic shifting of promising supervisory employees from one post to another in order to round out their experience, broaden their contacts and expand their knowledge of the business, thus fitting them for tomorrow's administrative positions, the program formerly was confined to the technical departments. Now it will be expanded to all Consolidated Edison system companies and to non-technical departments.

"Merry-Go-Round" Proves Value

Enlargement of the program is expected to bring in at least one hundred employees, largely recruited from the ranks of department or division heads, in addition to the seventy-eight employees now listed. Sixteen of the current group are on leave from the companies for war work or military duty and the experience they gain in those capacities will be credited as part of their administrative experience.

"Officers of the system companies feel that the Merry-Go-Round has proved its worth," Mr. Tapscott said. "And so we are extending the opportunities and benefits to be derived from it to the other departments of Consolidated Edison and to the other companies of the system. The program has been on trial for many more years than the last two in which it was tried out on a fairly large scale. For at least ten years the practice of moving supervisory employees from one job to another in order to extend their knowledge of the system and prove their ability to direct others has been employed within our electric divisions."

- **While perhaps not suitable to small companies, the "cadet executive" idea of employee training described here is of interest to many medium or large gas companies. It has much to commend it in normal times and merits attention now as a means of providing the nucleus of an experienced post-war administrative staff.**
- **This article is reproduced from "Around the System," employee publication of the Consolidated Edison System.**

With the merging of electric and gas facilities, Mr. Tapscott pointed out, a wider field was opened up for the training program already under way in certain departments. It became necessary for administrators to know both sides of the business and a great many job shifts took place in the interests of providing such training.

The "cadet executive" idea eventually crystallized into a well-defined program, which spread to other departments and finally leaped across departmental barriers to shift division and department heads into wholly different fields of administration for varying periods of time.

Among the advantages of the executive development program, as seen thus far by the executives under whom it has been operating, are:

The program provides a well-rounded training and background of experience for the employee, familiarizing him with many phases of the company's operations. He becomes able to think in terms of the whole organization and make intelligent decisions in that light.

It periodically introduces fresh managerial viewpoints, which shed new light on existing operations.

It stimulates the development of the individual because of the element of competition.

It presents an opportunity for revitalization to the competent supervisor who may have gone somewhat stale on a long unchanged assignment.

It tests the individual. The executive ability and adaptability demonstrated in the progressive assignments provide an indication as to which men are suitable as versatile "top-flight" executive material. The program provides a means of locating an individual in the job for which he is best qualified.

It tends to improve cooperation between individuals in the interests of greater efficiency for the organization.

Varying Periods for Shift

On the job-shift program for periods varying from a few weeks for latecomers to several years for those who started earlier in the system, some of the group have held three or four different administrative jobs in the period; others have made only one change.

Employees are chosen for the executive development group through meetings of the top men in the departments involved in the shifts, with the names of promising younger men in junior administrative jobs being introduced by their department heads or others who are impressed by their ability. Training, experience and personality of each trainee is discussed at length by the group. Suggestions are made for rounding out his training, for shifting him to a job where he may gain experience in a field unfamiliar to him, for testing his capacity for handling men, for extending the training in his present post. The program under which he is groomed for future administrative vacancies is entirely flexible, depending on the individual's experience and lacks. Job shifts usually are made at intervals of one and a half years.

"Men chosen for this work are

picked men, selected for their outstanding ability," Mr. Tapscott pointed out. "Their own department heads are not anxious to give them up and others are glad to get their services. They may find a sudden and drastic change in work a forbidding prospect at first, but they will soon realize that this program offers them a splendid chance to gain experience, a chance seldom made available to younger administrators in industry; that through it they have a chance to prove what they can do and qualify themselves for advancement."

Rotation Benefits System

"Just as rotation of crops enriches the soil, rotation of administrative personnel benefits the System Companies," Mr. Tapscott said. "Never before in the history of these utilities has an executive development program been so necessary. Most of the present and past 'top flight' executives grew up with the system as it expanded and progressed, and thus acquired wide experience and knowledge of all phases of the business. In earlier days the average service age of our executive staff was very high—forty and fifty-year service records were frequently attained and a quarter century pin was usually the mark of a veritable 'beginner.'

"However, today many of the younger or shorter-service administrators of necessity have come up through relatively narrow and highly specialized channels of the system's organization. In a system as large as this one has grown to be, the manifold operations are divided among many departments, each of which may be large in itself and may perform many functions, but is nevertheless only a part of the picture. The result is that many of the younger executives have not had an opportunity to expand their background of experience outside their specialized operations. Such men are likely to labor under a great disadvantage if required suddenly to step into top management, regardless of their personal abilities.

"The war has emphasized the need for developing the administrative talent at hand," Mr. Tapscott added. "With 5,500 employees on military and war-time leave (one out of six employees, many of them from the younger administrative group) and many of our junior and senior executives aiding the government in various war capacities, we are more than ever called upon to maintain a competent crew of officers to pilot our ship through the storm and form a nucleus on which to build when the storm subsides."

Mr. Tapscott stressed the fact that the expansion of the executive development program, while including virtually all departments, would consist of a rotation of administrative personnel within certain logical bounds and not a job-swapping among specialists. "Naturally, we don't expect a physician to operate a service bureau or an advertising copy chief to run an electric station," he said.

When the candidates for the expanded program have been chosen by the executives of the various companies and departments, the Personnel Department, under the direction of Vice-President A. Augustus Low, will supervise the operation of the program, setting up machinery for periodic job shifts.

Newspaper Ad Aids Red Cross Blood Bank

ALERT to the opportunity to render a patriotic service, the Portland Gas & Coke Company, Portland, Oregon, reproduced the accompanying advertisement in full-page size in local newspapers. It was received with such acclaim and was so effective in aiding the Red Cross Blood Bank, that steps were taken to make the ad available to other gas companies. As a result, the American Gas Association has made available mats from which the ad can be reproduced (see instructions under illustration).

The story behind the appearance of this ad is told as follows by R. G. Barnett, vice-president and general manager of the Oregon utility:

Ad Brings Flood of Applications

"The advertisement originally appeared in San Francisco newspapers over the signature of the Anglo Bank. Blood donations at that time had fallen considerably below the quota, but as soon as the advertisement was published the Red Cross was literally swamped with telephone applications. The practical results of the advertisement were praised by Red Cross officials in the highest possible terms.

"We learned of this advertisement through the fact that the Anglo Bank's advertising agency is McCann-Erickson, Inc., which also is our agency here in Portland and likewise is the agency for the American Gas Association. We thereupon obtained the Anglo Bank's most willing permission to reproduce it over our signature in Portland. McCann-Erickson's San Francisco office supplied us with a complete electro for this reproduction, at cost, and thus the Bank gave us the benefit of all the necessary planning and high-grade art work that went into the advertisement.

"When we published the same advertisement in Portland, the local Blood Bank also was running below quota—a serious matter from a management standpoint because it means lost capacity which cannot be fully regained. Mr. Cameron Squires, one of our leading citizens who is directing the Blood Bank activities, reports the results in his own words:

" 'For some weeks,' Mr. Squires said, 'we had been hoping to get our quota of donors signed up a week in advance, and we almost succeeded in reaching this goal shortly after the appearance of the Gasco advertisement. Commencing Monday of the week that this advertisement appeared we cut off all other advertising mediums and on Friday of that week we had more than fifty percent of the following week's quota signed up. I feel sure that a striking advertisement of this sort helped a great deal in creating a momentum which will carry forward for some time.'

"Here, as everywhere else, the volunteers who are managing the Blood Bank and carrying on many of its arduous duties are some of the most active and public-spirited men and women of the community. In practically every city they work with limited appropriations which make it almost impossible to carry on the necessary promotion work to keep the Bank fully supplied with donors. The appearance of our advertisement brought a wave of appreciation from every group in the city engaged in Red Cross and similar civic activities and war work.

"I mention this because, while this may not seem an appropriate time or occasion to appraise the value of the advertisement in terms of good will, such good will is inseparably linked with a public undertaking of this kind, and is bound to make many friends for the organization.

"We are so convinced that other gas companies will want to publish this striking advertisement—which, incidentally, was selected by the American Newspaper Pub-

lishers Association for publication as an outstanding example of war-theme advertising—that we have obtained blanket permission from the Anglo Bank and McCann-Erickson to reproduce it anywhere in the country.

"As a sidelight, it is interesting to note that, on the Friday following the publication of the advertisement, some fifty members of Portland Gas & Coke Company, who had not been to the Bank in the previous eight weeks, went in a body as donors. This gesture on the part of the company people naturally was greatly appreciated by the Red Cross."

Southwest Manpower Conference

THE second in a series of regional conferences on manpower problems, sponsored by the Committee on Personnel Practices of the American Gas Association, was held in Dallas, Texas, August 25 and 26. This followed the highly successful Southwest Manpower Conference held in Dallas, June 30—the first in a series which is planned to cope with the wartime situation. Representatives of companies situated in Texas, Louisiana, Mississippi, Alabama, Oklahoma, Arkansas, and Kansas, attended the first meeting.

M. V. Cousins of Shreveport, personnel director of the United Gas Pipe Line Company and a member of the A. G. A. Committee on Personnel Practices, presided at the June 30 meeting. Robert I. Marshall, personnel manager, Electric Advisers, Inc., New York, N. Y., addressed the conference and Kurwin R. Boyes, secretary, represented the American Gas Association.

Each representative present described the manpower situation and experiences of his company. Questions were raised and procedures discussed freely on such matters as manpower availability, securing deferments which naturally lead to use and effectiveness of replacement schedules and manning schedules, extended work week and accompanying problems, wage and salary adjustments, methods of securing employees, use of women, effectiveness of pension plans to hold employees, training programs and replacement, employment stabilization, etc.

HOW TO BECOME A BLOOD DONOR
Here are the Red Cross official answers to questions frequently asked
DEATH DOES NOT WAIT—
Your blood donation is badly needed NOW!
PORTLAND GAS & COKE COMPANY
DEATH DOES NOT WAIT. By acting now you can save the life of a dying soldier, sailor or marine.
Four million pints of blood MUST BE HAD to save the lives of dying men. But ONE PINT is all you are now asked to give. You'll be proud to have done it! It means life or death to some boy in uniform. Results are instantaneous. Men are literally brought back from the edge of the grave. All this—for one pint of blood, painlessly given.
Won't you act promptly? Won't you act NOW? Everything is all arranged. If you are in good health and between 18 and 60 years old, just call the RED CROSS BLOOD DONOR CENTER at ATwater 8561 and tell us when you can come. Your appointment will be made to suit your convenience.
RED CROSS BLOOD DONOR CENTER
1634 S. W. ALDER (Corner of S. W. 17th and Alder)
DO IT NOW — PHONE ATwater 8561

- Companies desiring to publish this full-page newspaper advertisement should first communicate with their local Red Cross chapter and ascertain if facilities will be available for donating of blood at the time the ad appears.
- According to New York Headquarters of the Red Cross there are 33 blood donating centers throughout the country and each of these has mobile units in service.
- Arrangements have been made whereby the American Gas Association will supply a mat reproducing the main illustration of the ad (full-page size only) and the two lines of type under it which read, "DEATH DOES NOT WAIT—Your Blood Donation Is Badly Needed NOW!" The balance of the ad can be set up by your local newspapers from a reproduction of the ad which will accompany the mat.
- Cost of the mat is $3.50, F.O.B. New York. Kindly forward your order to Advertising Department, American Gas Association, 420 Lexington Avenue, New York 17, N. Y.

Pipe Located by A. G. A. Returns to Service

RICHMOND, Virginia, recently has laid a line of 10-year-old cast iron pipe in the city's high pressure gas distribution system. The pipe is 12-inches in diameter, plain ends, and 18-feet long and slightly less than the standard A.G.A. thickness of 0.54 inch.

This 12-inch gas pipe was purchased from Boston, Massachusetts, and was located through the American Gas Association. Richmond needed the pipe to increase the gas supply to the South Richmond area and the War Production Board was willing for Richmond to install the pipe if secondhand material could be obtained.

This cast iron pipe had been kept in open storage for quite a long time and consequently had to be cleaned before being installed. The pipe, of course, was uncoated and in spite of no protection from the weather during its storage, deterioration was so slight as to be insignificant.

After the pipe was thoroughly cleaned, the plain ends were painted in order to make a suitable surface for the application of the couplings. This simple treatment was so effective that when the pipe was installed and tested at 50-pounds air pressure per square inch, the line was found to be almost perfectly tight.

The pipe was installed under the direction of Marsden Smith, chief engineer of the Department of Public Utilities, Richmond, Virginia.

East Ohio Builds a

By Honoria B. Moomaw

Acting Secretary, Natural Gas Section

DESPITE a delay of nearly 30 days caused by heavy rains, construction engineers on the 120-mile 20-inch natural gas line from Brecksville to Maumee, Ohio, anticipate that the project will be completed by the scheduled date of September 15, 1943."

Thus a recent news release described the status of the new East Ohio line which will connect with the Panhandle Eastern Pipe Line Company's Detroit system. The release only hinted, however, at the problems which confronted the crews pushing forward to complete the project on schedule. These 30 days and some that followed stopped the work as long as the rain continued and when they were over there were new obstacles which were almost animate in their effort to slow up construction. Churchill's famous words paraphrased to mud, sweat and tears could be aptly applied to the difficulties encountered when a natural gas company sets out to build a new line.

If the engineer who turns on gas in a great manufacturing plant, the baker who uses gas every day in his giant ovens, and the housewife who takes her gas-equipped home as a matter of course could spend one day watching the back-breaking work of a single line crew out in some distant corn field, each of them would acquire a new and healthy respect for the arduous hours which make such dependable gas service possible.

The construction of any new natural gas pipe line presents a hundred annoying hindrances not foreseen when the line was first planned. The new East Ohio line illustrates in one locality the difficulties which face every natural gas company and which make all the more commendable the promptness with which these lines are completed.

May and June bring plenty of rain in northern Ohio,

ds a New Pipe Line

and this year was no exception. Where ditches had already been prepared, water rose up to a man's knees. Following the rains, ditches neatly even on both sides collapsed and the work of removing the caved in portions had to be done laboriously by hand.

At one point along the line a ditch which the night before had measured three feet across had become by morning a canal twenty-five feet from side to side. It was then that quicksand was discovered. The men worked frantically and against time to restore the lost ground. They were forced to discard most of their clothing as they sank deeper and deeper into the treacherous ground. Many had to be forcibly pulled out, often leaving behind them their valuable rubber boots. To a farmer living nearby, the draining of this quagmire was an unexpected blessing. His cellar was free of water for the first time in ten years.

Where there was no quicksand there was plain American mud. Near one of the many river crossings where the right-of-way drops down a steep incline to meet the river bottom level, the depth and slipperiness of the mud made descent a perilous adventure calling for a technic combining tight-rope walking and skiing. Down in the low ground the trucks and bulldozers plowed through deep ruts and each step of the workmen sent them down ankle deep into the sticky earth. The machines were covered with mud, the men were coated with it, even their faces. But the work went on. Soldiers fighting the well-known General Mud in the Aleutians and in North Africa might enjoy some very human consolation if they could see these home front soldiers plowing through the same miserable combination of earth and water.

Another unexpected problem was met in the river crossings where in other years the men could wade across. This year all work has had to be done from barges. In another instance several hundred yards of rock were found deceptively concealed under two feet of earth which called for

tedious days of blasting and excavating.

In spite of the mud, the high water, the rock, and all the other irritating sources of delay, however, the work is expected to be completed on schedule and when gas finally flows through the 20-inch pipe it will mean that between 50,000,000 to 100,000,000 cubic feet of natural gas will augment the supply now serving a great industrial area. This will in great part take care of unexpectedly heavy demands made by domestic and industrial consumers on high peak days this winter.

In addition to the new line, East Ohio is now completing the Robinson compressor station where five 26-ton engines will force natural gas into surrounding underground storage reservoirs or send it out through the lines when peak days require an extra supply to take care of war plants and homes. Supplementing this storage is the redoubled capacity of the unique liquefaction plant in Cleveland where now 2,800,000 gallons of liquefied gas can be stored to be transformed by a revolutionary process into 280,000,000 cubic feet of natural gas.

These efforts of one gas company to meet its civilian and its war obligations when multiplied by the efforts of hundreds of companies throughout the nation add up to a stupendous amount of work and an admirable performance. Critics recently have said that industry is too prone to give itself praise. Let those critics go out into the field, where the wells are being drilled, where the line is being laid, and the gigantic size of the operations will give them a salubrious respect for the results accomplished.

Out in Farmer Jones' corn field, new green will soon arise from the bare earth which covers the 20-inch; over the road crossing the last vestiges of mud will disappear, and traffic will go uninterrupted; in the river bottom the swamp grass will grow again in the wet ground, and the tractor marks will soon have been erased. The job will soon be completed, and underneath this American land, physically untouched by war, will continue to flow a priceless fuel which is part of our insurance that this land may remain as it is now.

Reserves of Fuel Oil

(OPA Release, August 21)

ACTING to assure the uninterrupted operation of public utilities and manufacturing plants in the event of an unforeseen disruption of fuel oil deliveries next winter, the Office of Price Administration August 21 announced a procedure which will permit certain users of fuel oil for commercial, industrial or governmental purposes to obtain emergency reserves of oil.

Under the fuel oil rationing procedure, users of fuel oil for industrial, commercial and similar non-heating purposes are issued allotments on a three months' basis, these rations representing minimum requirements. The emergency reserve, or working inventory, arrangement is intended to guard against enforced shutdowns of those companies whose reserves are depleted and who might not be able to obtain their fuel oil supplies because of transportation difficulties or other temporary delays.

The extra reserve of oil may be obtained by industrial and commercial users—the so-called "1102" consumers—whose storage facilities can hold more than a 30-day supply of oil (based on the current quarterly ration) and if the area is well enough supplied with oil so that the granting of an inventory reserve will not jeopardize the fuel oil supply of other ration holders.

As a general rule, the inventory reserve will be granted in an amount equal to the unfilled storage capacity of the facilities used for storing the current three months' allotment of oil, or 90 days' maximum requirements, whichever is less. The largest three months' ration ever issued to the applicant for the particular purpose will be used in determining his 90 days' maximum requirements.

However, in the event the plant or factory of the consumer is so located that deliveries of oil are impossible during the winter months, the OPA will issue coupons for an inventory reserve equal to the unfilled storage capacity or twice the current quarterly ration—that is, a 180 days' supply, based on the current allotment.

Consumers who are granted an inventory reserve are specifically prohibited from using a larger amount of oil than the amount of their allotment for the quarterly period.

An application for an inventory reserve should be made, in person or by mail, to the OPA district director having jurisdiction over the area in which the applicant's local board is located. It must show in detail:

1. The name and address of the applicant.
2. The amount of the current quarterly fuel oil ration and the purpose for which it was issued.
3. The location of the fuel oil storage facilities used to store the allotment and the total capacity of these facilities on the date of application.
4. The unfilled storage capacity of the facilities on the date of application.
5. The amount of the largest quarterly ration ever issued for the particular purpose.
6. The number and address of the board.

Officials stated that a reserve of oil is particularly important in the case of gas utilities. If these plants were required to cease operations for only three minutes due to a lack of oil, it would require weeks to resume. In addition, the reserve arrangement will enable the oil industry to deliver large amounts of the heavy, industrial types of oil before the peak demand period begins this fall.

This action is contained in Amendment No. 75 to Ration Order 11, effective August 20, 1943.

WPB Eases Utility Rules on Extensions

THE War Production Board on August 24 eliminated a vast amount of paper work by simplifying the system by which applications for extensions of utility services involving small amounts of materials are handled.

A new order, U-1-F, permits utilities to grant extensions without filing applications with Washington when the restrictions of the order are met. This implies no relaxation of the restrictions, but eliminates processing of eight to ten thousand applications a month, most of which have been granted as a matter of necessity.

Under the new rules, domestic consumers seeking extension of electric, gas or central-heating service must be located in a critical housing area as determined by the National Housing Administration, but water consumers need not be in one of these areas. The list of areas is attached to the order. Industrial and commercial consumers must be engaged in an essential activity as defined in schedules I and II of C. M. P. regulation 5.

The cost of the extension must not exceed $1,500 for underground construction or $500 for other construction. Complete construction standards are set up for each type of extension. The order does not apply where construction or renovation is involved costing more than $200.

Potato Peeler

THE problem of how to get the skin off the potato and still leave some of the potato has been solved by the gas industry. Vegetables for commercial use now are skinned by intense heat applied at such a rapid rate that the skin is burned away without affecting the interior of the vegetable. Apparatus used at present skins one and one-half tons of vegetables hourly.

It's the Weather . . . *Value of the Degree Day and Long-Range Statistics*

Raymond Little

Apart from its general interest to the gas industry this article is also significant in relation to long-range studies of gas house heating peak loads. Further information on this subject is contained in an article by Pilkington and Garnhart in the October, 1941 A. G. A. Monthly.

By RAYMOND LITTLE*

Utilization Engineer and Commercial Manager, Equitable Gas Company, Pittsburgh, Pa.

THE beginnings of the study of weather are lost in antiquity. Some of the earliest meteorological writings contain only fragmentary references to weather phenomena. However, the earliest known systematic discussions were the Meteorologica of Aristotle (384 to 322 B.C.). History also records that Theophratus, a pupil of Aristotle, wrote treatises on winds and on weather signs. Following these writings the study of weather, climate and the atmosphere stood still for two thousand years.

World-Wide Interest in Weather

In a period of years ranging from 1607 to 1670 the thermometer, barometer and wheel barometer were invented. Also within this period Boyle's Law was discovered and these developments marked the beginning of meteorology or knowledge of the atmosphere as an exact science. The true nature of atmospheric air was established by Lavoisier in 1783 and the laws of pressure of water-vapor in air were given by Dalton in 1800.

As a result of the efforts of many individual scientists numerous Meteorological Societies were founded in America, England, France, Germany, Austria, Belgium, Italy and Japan. This development of world interest in weather lead to a movement of international cooperation being established by an international conference held at Brussels in 1853 which cooperation was put on a more sound basis by an international congress in Vienna in 1873. A system for the exchange of information was developed, first by telegraph and later by wireless telegraphy.

From these early beginnings weather bulletins are now available daily from many of 5,000 Weather Bureau Stations located in cities and rural parts of the United States. It is interesting to note, parenthetically, that the first weather charts with systematic observations were published in France from 1774 to 1829. With the up-to-the-minute service available to agriculture, commerce and industry today, one is amused to find that the first daily weather charts were published in 1820 but covered each day for the year 1783. Such delays were no doubt of little concern in these early days because the long-term studies then carried on were concerned with the movement of storms over the surface of the earth and were evidently intended to benefit maritime shipping. At least in America, the first research on storms was published in 1841 at Boston, then as now an important seaport.

Weather forecasts in the United States were first issued by the United States Signal Corps. By 1896 the service had been so expanded that it was transferred to the Department of Agriculture, marking the beginning of the United States Weather Bureau. As a part of the Department of Agriculture, the Bureau's primary purpose was to disseminate information to farmers which would be helpful in the raising of crops. On July first 1939, the Weather Bureau was transferred to the Department of Commerce. This recent transfer was made because meteorological information is essential not only to agriculture, but also to the merchant marine, aviation and the air conditioning industries involving heating, cooling and dehumidification. In fact, service of such a nature may soon be available to the electric power industry as a material aid in predicting power loads for illumination purposes. Further, modern warfare makes a reliable weather service essential to the Army, Navy and Air Corps. Thus we find that a systematic, reliable weather service is necessary for the safety, comfort, well-being and protection or defense of the people of any nation.

Aircraft and ships at sea are operated safely because of weather information available. Seasonal fuel requirements can be accurately anticipated through recorded weather experience and predictions, thus assuring comfort and health to millions of people. Flood and storm warnings afford an opportunity to prepare for an oncoming emergency and, thereby, saving lives and protecting property. Frost, cold weather, hot weather and drought warnings have saved many million dollars worth of produce, grain and fruit crops as well as cattle, poultry and other livestock.

*A. G. A. representative on National Joint Committee on Weather Statistics.

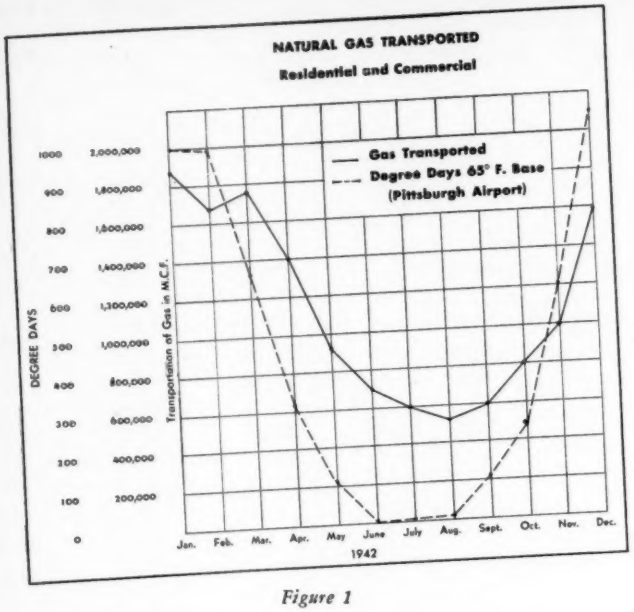


Figure 1

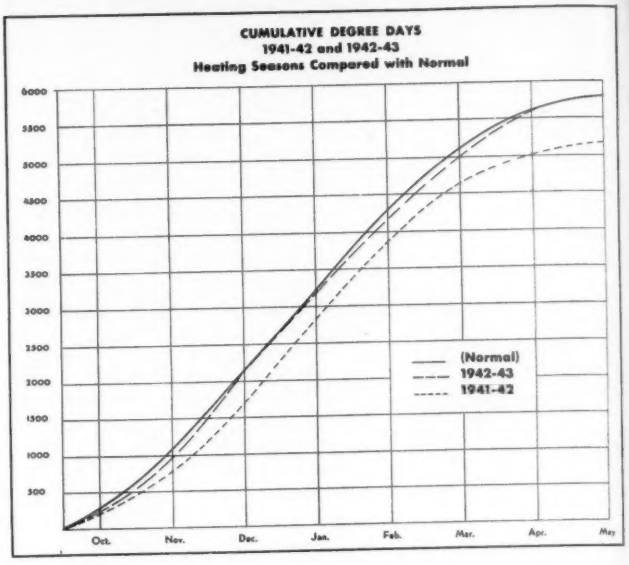


Figure 2

Obviously, the gas industry has a vital interest in weather statistics and, through the work of the American Gas Association, an outstanding and practical contribution was made to the science of weather about twenty years ago. The heating, ventilating and air conditioning industry was greatly benefited by the Association's development of the Degree Day as an operating unit. The unit has been accepted and used extensively by the United States Weather Bureau, the American Society of Heating and Ventilating Engineers, the National District Heating Association and many others.

Degree Day Has Many Uses

It is commonly known that the number of degree days over any given period is the summation of the daily differences between 65° Fahrenheit and the daily mean of the maximum-minimum temperature. The basic figure of 65° F. represents a daily mean temperature indicating a day-time temperature of 70° F. and a night temperature of 60° F. This basic mean temperature was determined only after extended experimentation and field observation on the part of the American Gas Association as the mean temperature at which we start to use fuel for space heating purposes. Since its adoption, some have endeavored to justify the figure by mathematical equations or by the development of empirical formulae beyond those used in its original establishment. These efforts have all proven of no avail and there is no reason at present to believe that they will ever be successful. Human requirements for comfort and health appear to be the only true basis for establishing a basic mean temperature for figuring degree day accumulations. Twenty years of experience have served to confirm the experimental work of the A. G. A. as being well founded.

The degree day unit has been used for many purposes and with the passing of time the use of this basic weather unit is becoming more extensive. Originally and as quoted from the Third Edition of the House Heating Reference Book of the A. G. A. "Degree Days" were given to the gas industry for the following reason: "To facilitate selling house-heating boilers, we should have sufficient knowledge of our local weather conditions to enable us to estimate the probable gas consumption for the year for any given installation and we should also be able to apportion this gas consumption as it will be used from month to month. If we have this knowledge, it can often be used to advantage in checking the consumptions of actual installations, thus determining whether or not they are operating properly, and occasionally this knowledge can aid us in accounting for apparently high gas bills caused by extremely cold periods." The wording of this quotation indicates that at the time the reference book was written most gas heating was done by boilers and wet heat systems. Since that time the use of forced air heating furnaces, unit heaters and circulating heaters has increased markedly. Fortunately the degree day unit is applicable to all forms of space heating.

While the primary purpose of establishing the unit was as quoted above, it is of interest to consider other ways in which it has proven of value not only to the gas industry but to district steam companies, as well as to all concerned with fuels and space heating. In Figure 1, the 1942 accumulation of degree days for the Pittsburgh area is plotted with respect to the transportation of residential and commercial gas in M.C.E. Curves and data similar to this are used throughout the gas industry as an aid in predicting fuel requirements at any time during the year. When a normal degree day accumulation for an area has been established and the course of mean temperatures observed for a number of years, then heating fuel requirements can be predicted accurately if base load requirements are known. Thus in the gas industry with the aid of weather reports and predictions it is possible to anticipate transportation requirements and storage pool or reserve requirements for the residential and commercial markets. This knowledge is a valuable guide to management in planning for seasonal requirements and in estimating the volumes of gas available

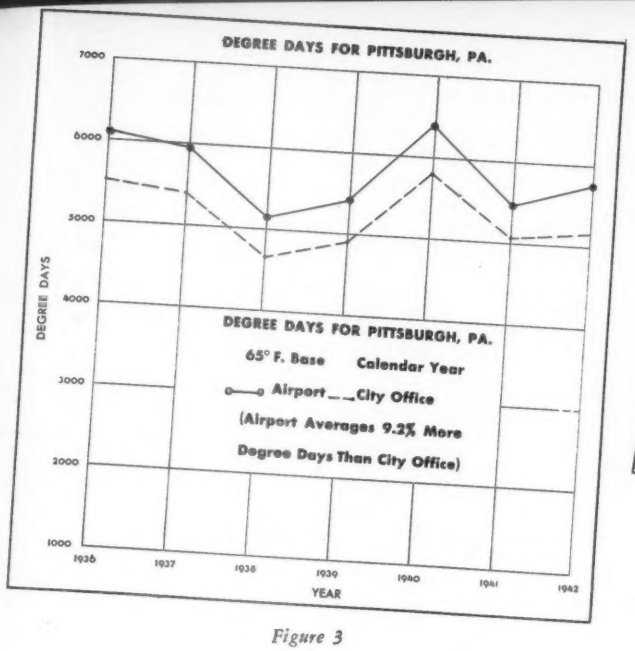


Figure 3

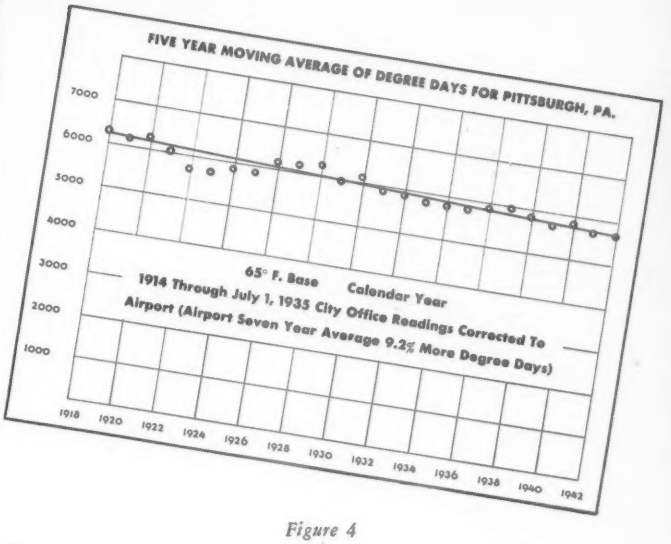


Figure 4

for delivery to the industrial market.

A second chart frequently used to advantage by the sales or promotion departments of gas utilities is illustrated by Figure 2. As indicated, the heating season's normal degree day accumulation for the Pittsburgh area is shown as an example. In addition, the degree day accumulation for the preceding year is plotted and finally the same curve for a current season. This material is made available to all sales offices and is useful in comparing the preceding winter with the current winter to date while at the same time showing departures from normal weather. The information is of value in answering high bill complaints and is often instrumental in justifying an apparent high bill or disclosing heating plant trouble causing inefficient operation.

A curve of this kind also indicates the percentage of the heating season that is past or yet to be encountered as of any date. This is true because, with only rare exceptions, cold weather accumulation in any heating season will closely approach a well founded normal pattern. Therefore, if the fore part of a heating season is below normal or moderate, then it can be anticipated that the remainder of the season will be colder than normal. A curve of this nature is also helpful in anticipating load requirements for a current season and guides operating management in making provisions for holding peak load natural gas in reserve or maintaining stock piles for manufactured gas.

Gas companies and others operating in a particular area or zone can easily check on weather variations peculiar to the zone in which they serve. Often it is found that certain spots in an area are colder than average or normal. In fact, evidence is on hand to make it safe to say that the metropolitan area of a large city shows a warmer atmosphere than suburban or outlying territories around the city. This condition is reported by New York City, Chicago, Detroit, Pittsburgh and elsewhere. Figure 3 shows a six year comparison for degree day accumulations in downtown Pittsburgh and at the airport about twelve miles out. As indicated, there is a 9.2 per cent higher average at the airport and since most gas consumers live outside of the city the higher figures are used for estimating purposes. On the other hand the district steam heating company is interested in the lower figures only.

Warm Weather Trend

Weather observations in numerous parts of the nation over the past few years indicate that the atmosphere is getting warmer. These observations lend credence to the often heard claim that winters are not as severe as they were in days gone by. The use of degree day accumulations over the years has been very helpful in the study of this situation. For example, Figure 4 is plotted on the basis of a five year moving average over a period of time from 1914 to 1942. The mean line drawn through the points plotted indicates a warming up of the atmosphere of approximately 10 per cent in this period of thirty-eight years. To date, such evidence cannot be taken as conclusive because, for one thing, the taking of meteorological data has been refined continually through this period of years. Also this may be a phenomenon of weather that cannot be verified until more years of experience are available. It may be a weather cycle that will change in direction every forty or fifty years. However, the development of the degree day unit makes it simple to observe the course of weather in this respect.

In order to amplify the information just quoted on the weather at Pittsburgh, Stanford Setchell, assistant engineer of utilization of the American Gas Association, computed weather data for three locations in New York State: New York City, Albany, and Lake Placid.

Calculation of the Degree Day Data

Where available, monthly degree-day totals as published in "Heating and Ventilating" were used. Where these figures could not be obtained, the monthly degree days were calculated from the mean monthly temperatures furnished by the United States Weather

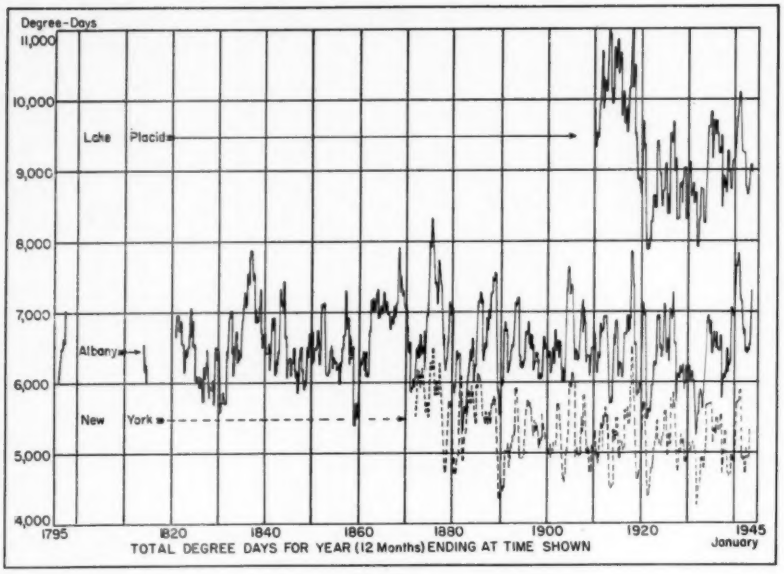


Figure 5

Bureau. These monthly mean temperatures were converted to monthly degree days by subtracting the monthly mean temperature from 65° and then multiplying this difference by the number of days in the month. This procedure varies slightly from the more usual one of computing the degree days day to day. The error, however, is small, in no case exceeding 3%, and the work of computation is much simplified.

The purpose of calculating the degree days over the longest possible periods was to disclose the existence of definite weather trends, if indeed such exist. One useful scheme for showing the presence of trends is the simple mathematical process known as the "moving" average, obtained in these calculations by successively adding the data for the next month while subtracting a month at the beginning. Thus the degree days are obtained first from January through December, then February through to January, March to February and so on. The interval between the end months was first taken as one year—then the process was repeated with five years† and finally with twenty years between the ends.

The results of these computations have been plotted in Figures 5, 6, and 7. The effect of the longer intervals can readily be seen for the curves‡ smooth out and the minor variations disappear so as to reveal long-term trends if they exist.

† Naturally the five and twenty year figures were reduced to annual averages by dividing by 5 and 20 respectively.

‡ Though shown as curves, these are really points lying so close together as to resemble a curve. Each point on Fig. 6 represents the average annual degree day value for a 5 year period plotted at the end of the period covered. On Fig. 7 the points are plotted at the end of 20 year periods. Thus the first point shown (Dec. 1839) is the 20 year average annual degree day data beginning with January, 1820.

Weather Trends Indicated by Degree Day Curves

The gas industry has always hoped that definite weather trends could be found so as to assist in the prediction of future loads. There also was some hope that the weather was getting warmer, so that house heating peaks would become somewhat less severe in the future. To a limited extent, since only New York, Albany, Pittsburgh, and Lake Placid are covered in this paper, the answer to these hopes is revealed.

Figure 5 shows the very great variations in heating requirements as the moving average moves forward month by month. Within the space of a few years, variations of 30% or 40% may occur. Great variations from one winter to another are shown and the weather in one winter gives no clue whatsoever to the weather in the next. In large measure the Albany and New York curves rise and fall together. The Lake Placid curve agrees with the other two in some respects, but is different in others. Apparently, the distance from the other stations and the location in the mountains produce a somewhat different climatic behavior at

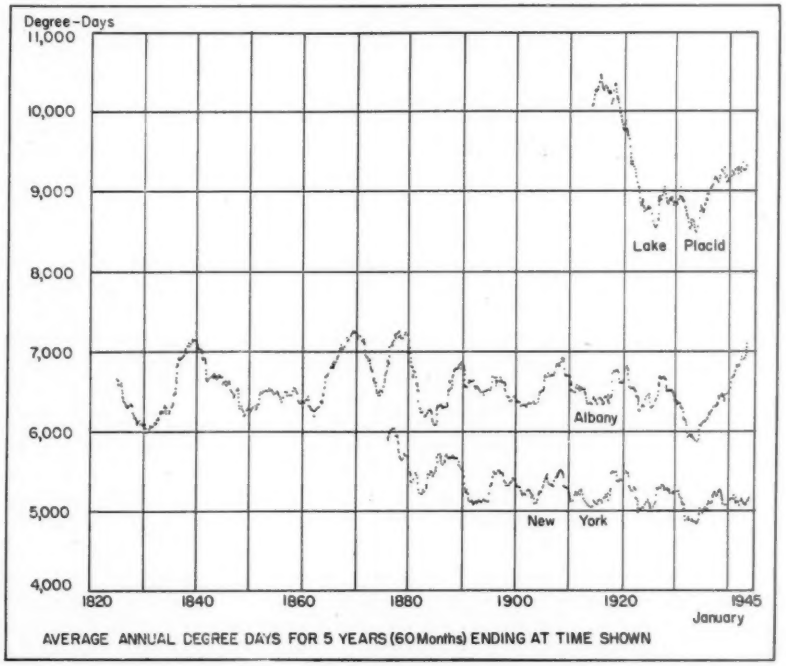


Figure 6

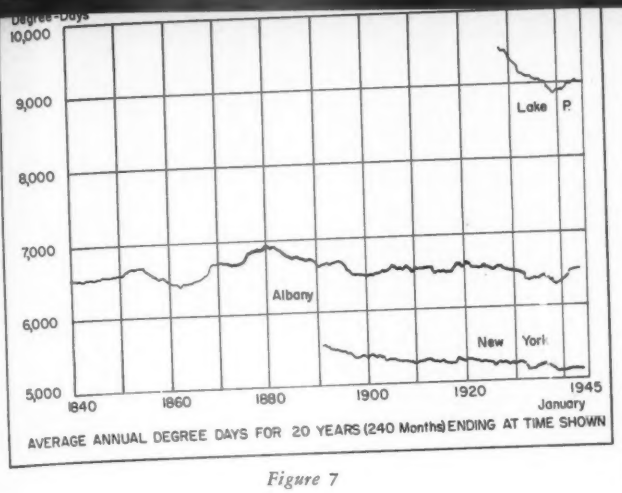


Figure 7

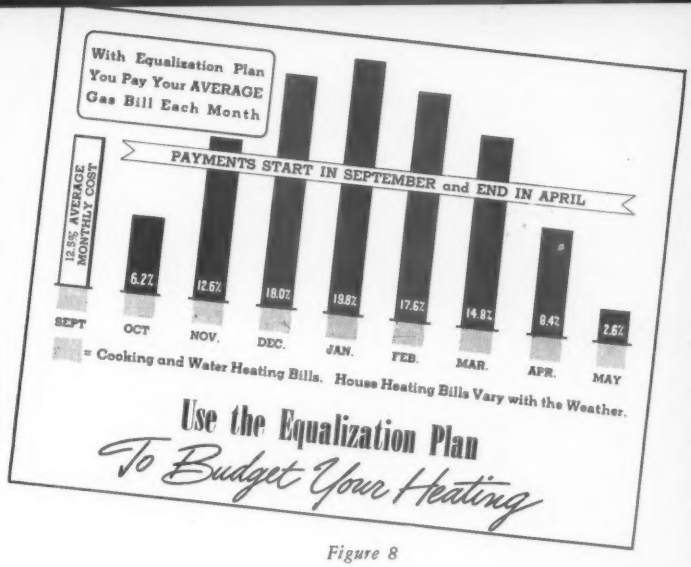


Figure 8

Lake Placid from that of the other two locations.

Figure 6 shows certain pronounced cycles. At Albany there are pronounced peaks in 1839, 1869, and 1878, and another seems to be developing in 1943. New York seems to have corresponding peak at 1878, but there is no sign of one in 1943. Lake Placid has a very pronounced peak in 1915-17 while both Albany and New York have valleys at that date. Lesser peaks are noticeable at Albany in 1825, 1854-58 and at both Albany and New York for 1888, 1897, 1908, 1918-20, and 1927. There appear to be cycles about ten years in length.

In Figure 7 the short-term variations have been largely eliminated and certain long-term trends are indicated. The Lake Placid data does not go back far enough for any conclusions to be drawn except that the weather at that locality has grown warmer over the relatively short period covered. At Albany the climate apparently grew somewhat colder from 1820-1855. During the next eight years the weather got somewhat warmer. It became definitely colder toward 1882, and then warmer to 1900. For the twenty year periods ending from 1900 to 1930 there was little change in the weather. From 1930 to date it grew somewhat warmer and then colder again. In other words, for the last 60 years or so there seems to be little change in the Albany climate. In New York City, on the other hand, the weather appears to have grown warmer almost continuously from 1871 to date. One theory advanced for the warmer winters in large cities is the increasing amount of fuel used in those cities and their increasing size. This would tend to raise the city's temperature even if the surrounding climate remained the same. The above comparison between Albany and New York seems to lend weight to this contention. However, there might be other contributing causes for these differences, such as New York City's seaboard location compared to the inland location of Albany. The marked drop at Lake Placid is interesting since this is a small rural community where the effects of man-made heat are very small.

Work on the data from these three locations points to certain interesting indications, but they should not be accepted as conclusions without similar confirming data from a number of other locations.

Visualizing Heating Requirements

As previously indicated the value of "degree days" is not limited to operating, technical or scientific applications. It has been of inestimable value in picture or chart form in aiding the customer and prospective customer to visualize seasonal heating requirements. In selling gas house heating salesmen are frequently confronted with the objection of high operating cost. Usually such impressions on the part of a prospective customer have been gained through a gas heating friend or acquaintance quoting amounts paid for gas during peak months of a season. Hundreds of times this objection has been dispelled through the use of an appropriate chart based on degree day accumulations month by month during a heating season. Through promotion and publicity gas heating customers are more and more thinking in terms of seasonal or average monthly cost.

One of the latest forms of such a chart is shown by Figure 8. Many gas companies in order to encourage the use of gas for heating are introducing as a part of their rates and tariffs an equalization plan as a means of eliminating peak bills in the cold months. Usually the plans cover a seven or eight months period and the customer is required to pay an average monthly amount throughout the heating season. Of course, details vary but the ultimate objective of such plans is to sell more gas for heating. Experience over the past five or six years with such inducements indicates that they work. Not only do they sell gas for heating but they also build customer confidence due to the accuracy with which estimates of heating cost can be made.

Space does not permit further discussion of the many uses to which the degree day unit can be put. The foregoing seems sufficient to verify that A. G. A.'s contribution in this respect was outstanding and should rank high in a chronicle of meterological science. However, there still is considerable work to be done by all interested parties if the greatest benefit from the use of the degree day unit is to be realized.

In 1941 at the annual convention of the National District Heating Asso-

ciation there was a discussion of the differences that existed between figures for normal degree days in certain cities in the Operating Statistics Report and those in use by the heating utilities in these cities. The figures in the report were taken from the ASHVE 1941 Guide and came originally from a publication of the United States Weather Bureau. As a matter of fact the differences recognized here by the N.D.H.A. prevail throughout the heating industry and are a source of considerable annoyance and misunderstanding. Creditable heating publications, engineering manuals, United States Weather Bureau Reports and manufacturers catalogues usually differ in degree day accumulation figures shown for a particular city or area. This is entirely unnecessary and such confusion can be eliminated.

National Committee Formed

Fortunately, steps are being taken to correct this condition. As a result of the discussion on this question at the 1941 N.D.H.A. Convention a Joint Committee on Weather Statistics was organized. John F. Collins, Jr., Secretary of N.D.H.A., is chairman of the Committee and the members represent the American Society of Heating and Ventilating Engineers, National Warm Air Association, Oil Heating Institute, United States Weather Bureau and the writer represents the American Gas Association. In the near future an additional member will be requested to serve as a representative of the coal fuel and equipment interests. The scope of the Committee's work covers three major problems and seven minor ones all dealing with an improved weather service to eliminate confusion and error by coordinating and standardizing statistics.

To date, the Committee has met a number of times and considerable progress has been made toward achieving the main objectives. It is the consensus of opinion of its members that normal degree days for a city area are lower than for the area immediately surrounding the city. This is one source of confusion and can be eliminated if the Weather Bureau will publish a metropolitan area normal and suburban area normal. Further it is the opinion of this Committee that degree day normals and current day-to-day degree day accumulations should be published on an official basis by the Weather Bureau. A definite procedure acceptable to all should be established by the Weather Bureau in obtaining the official daily, monthly, annual and normal figures. This is an important step and necessary to eliminate differences in published degree day figures throughout the nation.

65° Base Satisfactory

In the course of the Committee's discussion the question was raised as to whether 65° was a well founded base for all parts of the nation. It was thought that in the southwestern part of the United States a 65° mean or base was too low. As a result of this discussion the writer was requested to make inquiry through the A. G. A. by asking member companies in the southwest to give their views on this matter. Information was received from Texas, Arkansas and Southern California, all of which verified the 65° base as being satisfactory. In some cases it was reported that degree day accumulations figured on the 65° base did not apply to all parts of the territory served by a particular gas company, but experience in the area has resulted in the necessary correction factors being developed. It is recognized that correction factors for parts of a given area may be necessary in many sections of the nation due to extremely high or low elevations and in sunny parts maximum and minimum temperatures may be affected markedly by solar radiation. However, from information received from these southwestern gas companies it is apparent the 65° base is satisfactory and one standard base for the nation is important to the objective of eliminating confusion. To establish varying bases for several parts of the country would have the opposite effect.

Arriving at Daily Mean

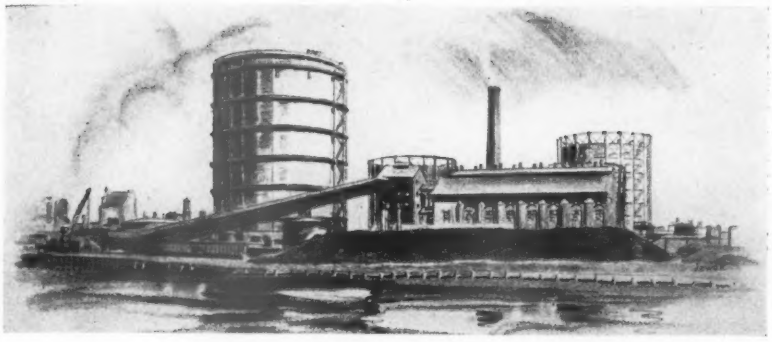
Another matter considered by the Joint Committee on Weather Statistics is the method of arriving at the daily mean. Many in the heating industry believe the only correct mean is the average of instantaneous temperatures taken throughout the day. Others believe that a mean figured from the maximum and minimum temperature is sufficiently accurate. Considerable investigation of these two methods is indicative that the "maximum-minimum" mean is sufficiently accurate. It is conceivable that during a single day a considerable difference will develop in a comparison of the two methods but over an entire month or season such differences would be compensating. Several comparisons for an entire heating season have been made using the two methods and differences or the error shown run from three-tenths to five-tenths of one per cent. Since the "maximum-minimum" method is the simpler it is suggested this method be used because the error is negligible for all practical purposes.

Other Committee discussions centered around such questions as the location of the U. S. Weather Bureau Stations where air temperatures are observed and/or recorded, the classifications of these stations, the instruments on hand in each and used or usable to observe or record temperatures. These instruments include thermometers for observation only, recording thermometers, maximum-minimum thermome-

(Continued on page 379)

Canning Center Aids Housewives

INFORMATION which will help housewives prepare fruits and vegetables for winter storage is being provided at this attractive canning information center on the main floor of the Michigan Consolidated Gas Company. Sponsoring organizations for the center are the Ann Arbor Nutrition Committee, Civilian War Services, American Red Cross, and the home service department of the gas company



Modern gas manufacturing plant of Public Service

Development of the Gas Business in New Jersey

In commemoration of the fortieth anniversary of the Public Service Corporation of New Jersey, that organization published an attractive illustrated booklet reviewing the history of this great enterprise. The following description was taken from that booklet.

THE gas business in New Jersey is approximately 100 years old.

The first gas company in New Jersey to be incorporated was the Paterson Gas Light Company in 1825—just nine years after the nation's first gas company in Baltimore came into existence. The actual operation of the Paterson company, however, did not begin until 1847. The distinction of having the first gas industry in the State lies between Paterson and Newark, inasmuch as the Newark Gas Light Company also began operation in 1847, having been incorporated in 1845.

It may be said, then, that the gas-making plants of the Public Service system have been in operation and service has never been interrupted for ninety-six years.

The original use of gas was for illuminating purposes only. Later when gas met the strong competition of electricity it was not only able to survive but continues to thrive because of the extension of its use to cooking and heating and its adaptation to manifold industrial processes.

The use of gas, particularly for industrial purposes and for cooking and heating, has increased so rapidly that the output of Public Service last year (1942) was more than six times what it was in 1904. Always a step well ahead of the demand and offering an attractive inducement to industry to locate in the area served by the company, the capacity of Public Service gas plants has been increased from 22,932,000 cubic feet as of December 31, 1903 to 168,355,000 cubic feet in 1942.

One of the largest gas systems in the United States, Public Service is unique in the extent of its distribution. The territory served includes large cities—notably Newark, Jersey City, Paterson, Trenton, Camden—a greater number of smaller cities and many towns and boroughs where density of population is light. Yet, gas through Public Service is made available alike in rural, suburban and urban districts. In all, 299 New Jersey municipalities are served with gas by Public Service Electric and Gas Company, a total population approximating 3,500,000.

Over the years the various distribution systems of the many companies that have become a part of Public Service have been interconnected, mains have been extended into new territory and gas production has been concentrated in the more efficient works. The public has reaped the benefit through reasonable rates, adequate service and a much wider distribution then could have been obtained in any other way. There has been great concentration of production and widespread distribution with the result that no other single company anywhere in the United States covers so large a stretch of connected territory, or serves so diversified an area.

Expansion and Interconnection

The result of this continuing extension of mains is a distributing system that not only supplies gas to the many communities served, but connects and interconnects the company's various plants and makes possible an effective assembling of producing resources. One trunk line extends from the Camden plant to Trenton and thence by way of New Brunswick, Plainfield and Bound Brook to Raritan. It is ninety miles in length, one of the longest trunk mains for manufactured gas anywhere in existence, and into it can be pumped gas from Camden, Trenton, and New Brunswick.

At Plainfield it is connected to a ten-mile main from the Summit holder station, which is supplied from the Harrison Works, and as the Harrison holders are connected with Jersey City, the company has a line that reaches clear across the State from the Hudson to the Delaware and from Woodbury in South Jersey to the New York state line, in addition to trunks extending from Harrison into Passaic and Bergen counties.

A few figures illustrate the growth of the Public Service gas business in the past forty years. On December 31, 1903 there were 1,495 miles of mains in use; on December 31, 1942 the total miles of mains in use were 6,750. Meters in service December 31, 1903 totaled 187,384; and on December 31, 1942 the total of meters in service was 906,670.

The modern gas plants, both in regard to efficiency and economy of production, are a big step forward compared to the plants of forty years ago, or even to those of a quarter of a century ago. The largest of the Public Service gas manufacturing plants, the Harrison Gas Works, has a capacity of 36,000,000 cubic feet. One of the storage holders at this plant is of 15,000,000 cubic feet capacity—a modern, waterless type holder, one of the largest of its kind in the United States and, perhaps, in the world. Other large gas-making plants of the company are located throughout the territory served and have, each in turn, been greatly enlarged over the years.

Coke Plant Among Oldest

The company has gas manufacturing plants, in addition to the large one at Harrison, at Camden, Trenton, Paterson, Jersey City, Newark and one near New Brunswick. Its Camden Coke Plant, with its newly constructed ovens and equipment, represents the best modern practice in coke oven gas manufacture, although it is one of the oldest coke oven plants in this country.

At the outset, the gas business of the new Public Service Corporation of New Jersey was operated as a department of the corporation—as were the transportation business and the electric business, respectively. In October of 1909, Public Service Gas Company was formed as a subsidiary of the corporation to take over and operate the gas properties theretofore operated directly by the corporation.

On July 25, 1924, Public Service Gas Company, Public Service Electric Company and United Electric Company of New Jersey were merged and consolidated to form Public Service Electric and Gas Company as part of a plan involving the strengthening of the Public Service financial structure. Later in that same year seven smaller gas and electric companies were merged with Public Service Electric and Gas Company. Others of the underlying companies were merged with Public Service Electric and Gas Company over the years.

The process of consolidation of gas companies begun by Public Service Corporation of New Jersey in 1903 not only has resulted in lower cost of production and greater efficiency of service but also has benefited the consumer by effecting lower rates.

In many of the thousands of industrial processes so essential to the production of war materials in New Jersey, gas is of vital importance.

Servel Presents Gas Air Conditioning Unit at Series of Post-War-Slanted Meetings

A COAST-TO-COAST series of sectional meetings held in six major cities of the United States, and attended by more than 500 utility executives, officers of the Committee for Economic Development, and civic leaders, has been concluded under the sponsorship of officers and directors of Servel, Inc., of Evansville, Ind.

New York City, Chicago, Los Angeles, San Francisco, Atlanta, and Kansas City, were the locales for the luncheon and dinner conference during June and July, which were devoted to the subject of "Swinging Post-War Planning Into Action" and particularly to the presentation to the utility outlets of Servel's all-year gas air conditioning unit which will be available after the war.

At each of the meetings, the utility executives indicated enthusiastic interest in the gas air conditioning unit as a post-war product, as well as in the preliminary plans to establish gas industry cooperation at this time.

Outstanding Industrial Speakers

Such outstanding industrial leaders as Colonel Willard Chevalier, publisher of Business Week; Ralph Budd, president of the Burlington Railroad; H. Carl Wolf, president of the Atlanta Gas Light Co.; Byron T. Schutz, of Kansas City, district chairman of the Committee for Economic Development, and Ernest Ingold, president of the San Francisco Chamber of Commerce, all active in the work of the Committee for Economic Development in encouraging industry to plan now so there will be peacetime jobs for soldiers, sailors and civilians, were among the keynote speakers.

They characterized the post-war conferences attended by the utility men as "typical examples of what the CED is striving to accomplish."

Other important speakers were: Major Alexander Forward, managing director, American Gas Association; Joe H. Gill, president of the United Gas Corporation; Arthur Bridge, president of American Gas Association; Ed Noppel, of Ebasco Services, Inc.; Louis Ruthenburg, president of Servel, and others who revealed the post-war potentials for residential and commercial gas air conditioning, and described their experience with the unit which was shown in detail at the visual exhibits at each one of the meetings.

At each of the sectional meetings, a definite pattern of procedure and a tie up of the various groups concerned was effected. Mr. Ruthenburg sounded the keynote of the conferences and explained their purpose; George S. Jones, Jr., vice-president and general sales manager of Servel, acted as chairman; John K. Knighton, sales manager of Servel's All Year Gas Air Conditioning Division, explained how the all year gas air conditioning unit serves the public and the gas industry; an important official of the Committee for Economic Development stressed the need for such post-war planning as represented by the Evansville company's conferences and presentation of the gas air conditioning unit; and a gas utility speaker told of the successful experience of his company with field test units.

An exhibit of the gas air conditioning unit revealing significant phases in its development, was staged at each of the conference meetings. These exhibits covered the major features of all year gas air conditioning; potential markets, and the nine years of engineering, experiment, development and research.

The exhibit also featured models of the unit and of the Servel Test Residence designed by Lurelle Guild, industrial designer.

At the New York meeting, attended by 155 utility men and others, the need for cooperation today, among industries and other business groups, in order to better plan for the future, and effectively meet the challenge of post-war employment, was stressed by Colonel Chevalier who is Regional Vice-Chairman of the Committee for Economic Development.

Action Now Urged

Mr. Ruthenburg told the Servel guests at New York and other meetings that the purpose of the conferences was to "discuss a tangible product through which the gas utilities of America *now* can help to bring about substantially increased employment and productivity *immediately* after wartime restrictions are alleviated."

Mr. Ruthenburg, who is also president of the Indiana State Chamber of Commerce, and Indiana Chairman of the Committee for Economic Development, said that when war came, his company already had under way, plans and developments looking to the introduction on a major scale of at least one new product—gas air conditioning. He told the utility men that his company proposes, with their cooperation, and with its other friends and associates of the gas industry, to put into immediate action this program the day war ends. He said that it was hoped by this means to accomplish two definite objectives:

1. Through the manufacture of gas air-conditioning units, refrigerators and other gas appliances, to provide jobs for industrial workers now engaged solely in war work.

2. Through the distribution and sales of such units, to enable gas companies throughout America to give new employment to returning soldiers and sailors in their local communities.

Mr. Ruthenburg also said: "To win the peace, to insure perpetuation of our American institutions, high levels of employment and productivity must be achieved as quickly as may be possible in the early post-war period. That objective can be reached only by *immediate,* bold, effective planning on the part of the employers of America.

"Here is a project (gas air conditioning) that affords the opportunity for greatly increased employment through the gas industry and within the Servel organization. In my considered opinion, its ultimate potential for employment and for increased gas sales exceeds that of the gas refrigerator."

Sounding the challenge for ground work on the new air conditioning industry *"now,"* Mr. Ruthenburg said:

"If, in time of war, we have sufficient courage and imagination and capacity to prepare for peace, this new industry can *now* be advanced fully one year. We can make preliminary market surveys *now.* We can set up budget estimates *now.* We can establish and train skeleton organizations for sales, sales promotion, advertising, installation engineering and service *now.* In short, the gas industry and Servel can *now* prepare to move into this promising new field immediately and effectively as the light of peace dawns over the world. We can ill afford to ignore this challenge nor to neglect this opportunity. To all interested utility executives, the directors and officers of Servel pledge their complete cooperation."

American Appliances

(*The Gas Times,* London, July 10)

NO doubt you saw the recent report and recommendations of the Brooklyn Union Company of America on the matter of improvement in the designs of appliances. The remarkable thing about the report was the indication that their problems and, because of them, their aspirations, were so similar to ours. Ignition, aeration, heat control and such like problems seemingly require as earnest attention in America as in Britain. I incline to the belief that though we may be keeping pace or even be ahead of our American colleagues in technical matters, they can teach us a thing or two about production and the use of new materials. Well, we are now nearer to each other in terms of time, heart and soul. Associated problems can be solved in association. What a chance for a great get-together after the war!

Sparking the gas industry's post-war drive, Servel, Inc. held this series of meetings in six major U. S. cities. Above is the speakers' table at the Atlanta meeting. Left to right: J. K. Knighton, Servel, Inc.; Irwin J. Winn, Gainesville, Fla.; H. Carl Wolf, Atlanta; George S. Jones, Jr., Servel, Inc.; Louis Ruthenburg, president, Servel, Inc.; H. E. Meade, New Orleans; and Dr. Wm. Hainsworth, Servel, Inc. At right are Messrs. Jones and Ruthenburg with Joe H. Gill, United Gas Corp.

Carroll Miller, Servel, Inc., at the meeting in the Atlanta Biltmore Hotel. In the picture are, left to right: Irwin J. Wynn, Gainesville, Fla.; Charles Leach, Atlanta, Georgia; Mr. Miller; and E. J. Meade, vice-president, Atlanta Gas Light Company

At Kansas City—left to right: W. J. McIntyre, Arkansas-Louisiana Gas Co., Shreveport, La.; C. B. Wilson, Arkansas-Louisiana Gas Co., Little Rock; C. R. Porter, Kansas City Gas Co., Kansas City, Mo.; George S. Jones, Jr., Servel, Inc.; Louis Ruthenburg, president, Servel, Inc.; and Major T. J. Strickler, vice-president and general manager, Kansas City Gas Co.

At Los Angeles—left to right: George S. Jones, Jr.; Arthur F. Bridge, president, American Gas Association; A. F. Moriarity, Central Arizona Light and Power Co., Phoenix; William Moeller, Jr., Southern California Gas Co.; Louis Ruthenburg

Below—A group of Mid-West utility executives at the Chicago conference

At San Francisco—left to right: Harvey W. Edmund, vice-president and general manager, Coast Counties Gas & Electric Co., Santa Cruz; B. W. Reynolds, manager, domestic sales, Pacific Gas & Electric Co., San Francisco; and George S. Jones, Jr.

Left—E. D. Milener, A.G.A., and E. J. Boothby, Washington, at New York meeting. Right—R. C. Williams, Atlanta, and J. K. Knighton at Atlanta

NEW YORK MEETING TO DISCUSS GAS INDUSTRY'S POST-WAR PLANS

Columbia Gas Acts to Increase Supply

COLUMBIA Gas & Electric Corp. disclosed last month that it has completed a contract with the Chicago Corp. for a supply of natural gas "when transportation facilities become available." Chicago Corp., an investing company, controls large reserves in southwestern Texas.

The contract, signed by Manufacturers Light & Heat Co., Pittsburgh, a Columbia subsidiary, runs for thirty years and provides for minimum deliveries of 50,000,000 cubic feet a day and maximum deliveries of 100,000,000 cubic feet a day, all or part of which may be delivered from properties owned or controled by Chicago Corp.

Columbia Gas also recently entered into a contract with Hope Natural Gas Co., a subsidiary of Standard Oil Co. of New Jersey, for a substantial supply of natural gas for twenty years. The gas will be supplied from the Hugoton fields in Kansas, Oklahoma, and Northern Texas, to be delivered to Columbia System points of delivery through a pipe line which the Hope company proposes to construct if the necessary Certificate of Public Convenience and Necessity is obtained from the Federal Power Commission. Application for such certificate is pending and a hearing was scheduled by the Federal Power Commission for August 31.

Bottled Gas Speeds Florida Car

NO gasoline rationing worries for Selah E. Northway of Pompano Beach, Florida—his car speeds along on bottled gas, the variety marketed for cooking and heating purposes. Since gasoline rationing started in the East, his stationwagon has been equipped with a special carburettor which mixes the bottled gas with air.

The equipment, patterned after similar devices used for several years on trucks, cars and busses in Texas, Oklahoma and California, was cast by a Florida manufacturer from junk materials.

Their Florida manufacture, says Mr. Northway, came about when the gasoline ban shut off fuel supplies for Florida folks who made their livelihood from rental of pleasure boats for cruises and fishing. Mr. Northway was able to get one of the gadgets, which he had seen in use when the family lived in Texas.

The regular gas tank of the car remains connected and is turned on only when the "bottled" supply runs out or there is no nearby dealer. Provision for the large container for the bottled gas is made under the rear deck of the car. A small tube is connected to the vaporizer. The tank holds 60 pounds of the special gas, the equivalent to about 20 gallons. Under trial runs, 60 pounds of the gas is good for 200 miles.

Keys from London's Middle Ages Presented to Brooklyn Union

Keys which once opened the doors in medieval English buildings were in a collection presented to The Brooklyn Union Gas Company in August by The Gas Light and Coke Company of London. Lionel Elvin (left), of the London company, is shown presenting the keys to Clifford E. Paige, president of Brooklyn Union, and B. G. Neilson, vice-president. It was Brooklyn Union's Bring-in-a-Key Campaign which suggested the idea of a similar salvage campaign to Michael Milne-Watson of the London utility. The keys shown here, some of which date from the Middle Ages, are being mounted and placed on public display in Brooklyn

To Survey Post-War Appliance Needs

THE American Gas Association's Post-War Planning Committee, through its Subcommittee on New and Improved Post-War Gas Appliances, F. M. Rosenkrans, chairman, is making a survey of gas company recommendations for improvements of post-war gas appliances. The results of this survey will be publicized to the industry generally as a guide to manufacturers and others interested in appliance research and development.

The Invisible Stamp

GAS fuel has placed its "stamp" upon nearly every machine, part and weapon vital to the war effort . . . . at some point in its planning, heat-treating, fabrication or testing. You don't see the letters, G-A-S, but you know they are there, because gas incomparably provides the speed, hair-line heat control and dependability you need to meet Army and Navy standards. We are proud that our product thus helps you produce for Victory.—From recent P.C.G.A. advertisement.

Cold Canvass

SHE was interested in a stove, in fact she wanted to buy a stove, and told the furniture store salesman that was why she was in the store. She listened very patiently and meekly to the sales patter. She heard about noncorroding bolts and patented insulation material and the gauge of steel used, the tricky controls, and oversize combustion chambers, and all the other things that are so startlingly new in an old lady's world that you'd think would impress her mightily. Finally the salesman paused, and she still waited with patient expectancy.

"Well, madam, I've told you every thing about the stove," the salesman declared. "Is there anything else you'd like to know?" "Yes," she answered. "Will it keep an old lady warm?"

Personal AND OTHERWISE

Elected Vice-President

Bernard P. Carey

BERNARD P. CAREY has been elected vice-president in charge of legal affairs of the Philadelphia Electric Company, according to an announcement by H. P. Liversidge, president.

Mr. Carey entered the employ of the company in 1913. Five years later he was transferred to the legal department as a law clerk and assistant to the vice-president—the late Arthur B. Huey. He was attorney for the company from 1924 to 1928 and its counsel from 1928 to December 1, 1939, when he was made general counsel—a position he held immediately prior to his selection as vice-president.

Born in Philadelphia, Mr. Carey completed an academic course in the Brown Preparatory School and later graduated from the Temple University Law School. He was admitted to the bar in 1924.

Mr. Carey is a member of the American Bar Association, the American Gas Association, and a past president of the Pennsylvania Electric Association. He is also a past president of the Philadelphia Electric Company Employees' Association and a trustee of the Malvern Preparatory School at Malvern, Pa.

Win McCarter Awards for Life Saving

McCARTER Medals and Certificates of Assistance have been awarded in recent months to four gas company employees for performing outstanding acts of life saving by application of the Schafer prone pressure method of resuscitation. Those who won the coveted McCarter Medals are Charles Van Liew, fitter in the New Brunswick, N. J., gas distribution department, Public Service Electric & Gas Company, and Frederick H. Hummel, lineman with the Pennsylvania Power & Light Co., Stroudsburg, Pa.

McCarter Certificates of Assistance went to William F. Barr, fitter, and John Buckley, clerk, also employees of the New Brunswick gas distribution department, for their efforts in assisting Mr. Van Liew. The act for which these three employees were honored took place Dec. 22 when they revived a woman who had been overcome by gas. Special recognition was accorded them because of extremely difficult sleet conditions existing the night they so promptly executed their duties.

In making the presentation to the New Brunswick men on July 2, Thomas L. Mellick, engineer, outlined the safety measures which have been initiated over the years to permit gas to be utilized safely, leading up to the modern methods of resuscitation recognized by Thomas N. McCarter, donor of the medals, and chairman of the board of the Public Service Corp. of New Jersey.

The presentation to Mr. Hummel took place July 8 before a gathering of employees and company officials in the Pennsylvania Power & Light Company's Stroudsburg district office.

McCarter awards are made by the American Gas Association upon the recommendation of the Accident Prevention Committee.

Lieutenants Rahn

ERIC RAHN and Elsbeth Rahn, of the army nurses corps, son and daughter of Bruno Rahn, president of the Milwaukee Gas Light Co., were both recently commissioned Lieutenants.

Cited by British

Edward M. Borger

EDWARD M. BORGER, president of The Peoples Natural Gas Company, now on leave of absence to drive an ambulance on the fighting front, has been cited by the British for his service during the battle of Tunisia.

The special recognition was received for 62 continuous hours of effort in evacuating wounded during the last days of the battle. He was serving with a British medical unit.

Mr. Borger, 42, is one of the nation's youngest utility presidents. He is a son of Mrs. William E. Borger, 1207 Beaver Road, Sewickley, Pa. He enlisted in the American Field Service in 1942.

Blake Advanced by Public Service

THE board of directors of Public Service Corporation of New Jersey, August 17, created the post of executive vice-president and elected George H. Blake to the new position. Mr. Blake, who joined Public Service in 1910 as a trial attorney, has been vice-president and general solicitor of the corporation and its subsidiaries for the past six years. He has been a director since 1934 and a member of the executive committee since 1935.

Elected Vice-President of Jersey Central

L. B. Cherry

ELECTION of L. Byron Cherry, formerly associated with the law firm of Reid and Priest, New York, as vice-president of the Jersey Central Power and Light Company, has been announced by Thomas R. Crumley, president. Since June, 1942, Mr. Cherry has been serving as a special counsel for the company, when he was retained by the Board of Directors in connection with matters pending before the Federal Power Commission and the State Board of Public Utility Commissioners.

Smith Heads N. Y. Gas Production Dep't

OLIVER H. SMITH has been appointed manager of the gas production department of the Consolidated Edison Co. of New York, Inc., succeeding Robert A. Carter, who died in April. Other recent appointments are: Roland H. Strader, general superintendent, Astoria plant; Henry L. Jochum, superintendent, mechanical department; Karl B. Weber, superintendent, production department.

Mr. Smith is secretary of the Society of Gas Lighting. He has been associated with the New York company since 1912 and, since 1936, has been assistant engineer of gas production.

Ad Club Elects Saas

GEORGE A. SAAS, advertising manager and director of public relations, Citizens Gas and Coke Utility, Indianapolis, Indiana, was recently elected president of the Advertising Club of Indianapolis.

Mr. Saas, whose initials spell G.A.S., has been active for several years in promoting the various uses of gas as a fuel.

Miller and Hornby Are Lt. Colonels

PROMOTION of Major Robert W. Miller of Burlingame to the rank of Lieutenant Colonel was announced at Army Air Forces West Coast Training Center headquarters at Santa Ana, Calif., last month. At the same time it was announced that Robert A. Hornby, personnel staff officer at Santa Ana, was elevated to the rank of Lieutenant Colonel.

Col. Miller, who has been on active duty with the Air Forces since April, 1942, is attached to the ground and college training section of A-3 (Training) Division of the AAFWCTC, headquarters for all Army flying schools in the West.

President of the Pacific Lighting Corporation, and a director of other utilities and trust companies, Col. Miller was president of the San Francisco Opera Association.

Col. Hornby, who served in World War One as a private in the marines, was commissioned a major in the Air Forces early in 1942. At the time he entered the Army he was vice-president and executive engineer of Pacific Lighting Corporation which operates a number of large natural gas utilities in the west.

Lieutenant Colonel Miller

Lieutenant Colonel Hornby

Superintendent of Jersey Central

Harold P. Richmond

HAROLD P. RICHMOND, formerly manager of the Dover district of the Jersey Central Power and Light Co., has been appointed general superintendent of operations for the company with headquarters at Asbury Park, N. J., according to an announcement of Thomas R. Crumley, president. In this capacity Mr. Richmond will have charge of all electric and gas operations. He joined the company in 1929.

To the Individual Gas Man

(Gas Age, July 15)

IT is axiomatic that development never stands still. In fact, as we see it, no gas man can afford not to be a member of the American Gas Association. Through membership, he benefits himself, his company, the industry at large, and the whole system of free enterprise which has built America.

Haring Goes to Servel

CHESTER E. HARING, nationally known in the marketing research field, has been appointed associate director of sales research of Servel, Inc.

Mr. Haring was formerly director of the market research division of Hooper-Holmes Bureau, Inc., and before that vice-president and director of marketing for Batten, Barton, Durstine and Osborn, New York advertising agency. John Burgoyne, originator of the Burgoyne Grocery Index, has been named to assist Mr. Haring at Servel.

This staff expansion is for the purpose of enabling Lyman Hill, director of sales research for Servel, to concentrate on the post-war activities of the company.

To Conduct Gas Research

Benjamin Miller

BENJAMIN MILLER, expert on gas transmission, has been appointed to the staff of the Institute of Gas Technology at Illinois Institute of Technology. Mr. Miller, who has been associated with the Cities Service System for the past 15 years, was formerly consulting engineer and assistant to the president of Gas Advisors, Inc., a service company in Cities Service. In his new position, he will conduct advanced research and teach gas technology.

Author of several articles on pipeline flow for the trade and technical press, Mr. Miller has been granted numerous patents on inventions in the fields of oil and gas technology. He has also been concerned with the economic phases of the gas industry, and he testified recently on cost allocation during hearings held in Kansas City by the Federal Power Commission.

He received his chemical engineering degree in 1926 from Columbia University and his Batchelor of Arts degree from the same institution in 1924. From 1927-29, he was engaged in a research capacity at Columbia.

Now a Major

CHARLES G. SIMPSON, former personnel manager of The Philadelphia Gas Works Company, has been promoted to major. He is employee relations officer at the Third Service Command Headquarters in Baltimore.

While associated with Philadelphia Gas, Major Simpson was an active member of the Committee on Personnel Practices of the American Gas Association.

Drumm in Washington

LIEUT. COM. STREUBY L. DRUMM, on leave of absence from his position as general sales manager of New Orleans Public Service Inc., is now attached to the Bureau of Naval Personnel, Navy Department, Washington, D. C. A graduate of the United States Naval Academy, Lt. Commander Drumm was secretary-treasurer of the Southern Gas Association for a number of years.

Stotz Wins Award

LOUIS STOTZ, author of "History of the Gas Industry," and "Who's Who in the Public Utilities Industry," and former member of A. G. A. headquarters' staff, recently won a $50.00 cash prize in a national contest conducted by *The Reader's Digest* on the subject—"What's Wrong with Management."

W. H. Baldwin Resigns from Jersey Central

W. H. Baldwin

WILLIAM H. BALDWIN, assistant to the president of the Jersey Central Power and Light Co., and in charge of the company's gas and electric operations, has announced his resignation, effective July 31. Mr. Baldwin, since the war, has also been responsible for protection of company property and other defense measures.

Mr. Baldwin has been with Jersey Central since 1933, and has had more than 35 years experience in the utility field, serving in New England, the Mid-West and South. He is a graduate of Harvard University and, before joining Jersey Central, made his home at Wollaston, Mass. His present home is 501 Bendamere Ave., Interlaken, N. J.

Leverette Moves

WILLIAM E. LEVERETTE, sales manager of the Nashville Gas & Heating Company, Nashville, Tenn., has resigned to join the Ken-Rad Tube and Lamp Corp., Owensboro, Ky. An outstanding sales promotion man, Mr. Leverette was active in the Residential Section of the American Gas Association.

Newark Wins "E"

THE Newark Stove Company of Newark, Ohio, has been awarded the Army-Navy Production Award for its fine record in the production of war equipment. Notification of the award came from Robert P. Patterson, Under Secretary of War.

According to T. D. Adams, president, the Newark company now is engaged 100 per cent in war work.

Southern Union Elects Wofford Cain

AT the annual meeting of the board of directors of Southern Union Gas Co., headquarters in Dallas, Texas, Wofford Cain was elected president and chairman of the board of the company. He succeeds Albert S. Johnson, who is on leave from the company serving in the Army.

Other officers elected were Albert S. Johnson, vice-chairman of the board; C. H. Zachry, executive vice-president, F. W. Smith, vice-president and treasurer, and James C. Reid, vice-president and operating manager.

Book Review

Company Museums. By Laurence Vail Coleman. Director of the American Association of Museums.

THIS is a book for business men. Its main purpose is to show the nature and usefulness of company museums, but it may serve also as a guide for people who have museums of this kind to manage.

Company museums are museums belonging to industrial corporations, commercial houses, railroads, public utilities, newspapers, banks, insurance companies, and other concerns. These museums are used for business reference and public relations. They are devoted to the history, past and current, of their parent companies and to technical matters in their lines of business.

The appendix of the book describes eighty company museums in the United States and three in Canada.

Published: June 1943. By the American Association of Museums. Cloth, viii plus 174 pages, indexed, with 18 halftone illustrations. Price: $2.50.

NO FLOWERS

Notice in British gas show window: "During an alert we shall remain open. In the event of a direct hit we shall close at once."

Canning Centers in Florida a Success

A HIGHLY sucessful group of Community Canning Centers operating in Broward County, Florida, has done much to brighten the food picture in that locality. Sponsored by the food conservation committee of the Broward Defense Council, the project included Fort Lauderdale, Hollywood, Hallandale, Deerfield, Davie, Dania and Lanier. Cooperating with the project, the Peoples Water and Gas Company donated ten gas ranges and a water heater in Fort Lauderdale, five ranges in Hollywood and one in Hallandale.

Charging one cent a can and operating with limited equipment, enough food was canned in this one small county to save two and one-half million ration points.

The centers attracted such attention that even tourists from other states came to can grapefruit to take home with them. The New York Times and Chicago Sun carried feature stories on this phase of the activity.

The purpose behind the centers was not only to furnish means for people to conserve food but also to teach them the proper methods so that loss of food, as well as enthusiasm, would be averted.

Business Girls Learn to Cook

Part of a class of business girls taking a regular cooking course under the supervision of Margaret E. Burge, home economics supervisor, South Carolina Power Company at Charleston. A successful group of such demonstrations has been held. For each individual, the cost has been approximately 20¢ for food, with emphasis placed on the preparation of biscuit, vegetables, meat dishes, grilled and oven meals; all tied in with current-day needs in nutrition

P. C. G. A. Annual Meeting Sept. 22-23

F. M. Banks

THE fiftieth annual meeting of the Pacific Coast Gas Association will take place at the Ambassador Hotel, Los Angeles, on Wednesday and Thursday, September 22-23. The meeting time has been cut to a day and a half and the program is being restricted to the most pressing war-connected problems. Norman McKee, P.C.G.A. past president, is in charge of arrangements.

Prior to the opening luncheon and general session September 22, the Manufacturers' Section will hold its annual meeting. Election of officers, reports of division chairmen, and an address by H. Leigh Whitelaw, managing director, A.G.A.E.M., are to be highlights of this meeting.

The luncheon and first general session begin at noon and will include addresses by F. M. Banks, president, P.C.G.A.; Arthur F. Bridge, president, American Gas Association, and Col. W. F. Rockwell, president, A.G.A.E.M. General election of officers will be held at this meeting. Later in the afternoon the annual meeting of the Women's Committee will be held and also a meeting of the directors and Section chairmen. The motion picture "Oil for War—The Story of the Big Inch" will be shown at that time.

A manufacturers' cocktail party will take place at 5:00 P.M. and the day's events will conclude with a Golden Anniversary Dinner and program arranged by A. C. Joy.

The home service breakfast leads off the September 23 program with Carl Sorby, vice-president, Geo. D. Roper Corp., as the feature speaker. The general session will be devoted to war and post-war problems. Speakers will include Louis Ruthenburg, president, Servel, Inc.; H. L. Masser, chairman, P.C.G.A. Committee on Gas Industry Development, and a representative of the A. G. A. Post-War Planning Committee. A man prominent in West Coast Civil Defense will speak at the luncheon following the general session.

Meetings of the Accounting, Sales and Technical Sections will round out the program.

Ohio Gas and Oil Elects Shadrach

EARL F. SHADRACH, attorney at law and independent gas operator and driller, of Canton, Ohio, was elected president of the Ohio Gas and Oil Association last month. William R. Pringle, Cleveland, was named vice-president and Frank B. Maullar was re-elected secretary and treasurer, a position he has held for many years.

New directors are W. G. Rogers, T. C. Jones, Harry F. Moran, and Robert E. Finley.

P.C.G.A. Nominations

THE General Nominating Committee of the Pacific Coast Gas will make the following nominations at the Annual Meeting, Sept. 22-23.

For President—E. L. Payne, Vice-President and General Manager, Payne Furnace and Supply Co., Beverly Hills.

For Vice-President—O. R. Doerr, General Sales Manager, Pacific Gas and Electric Co., San Francisco.

For Treasurer—D. G. Martin, General Auditor, Pacific Gas and Electric Co., San Francisco.

For Director (2-year term)

F. F. Doyle, Manager Natural Gas Division, Pacific Gas and Electric Co.

W. J. McCoy, Comptroller & Treasurer, Southern Counties Gas Co.

D. H. Perkins, Supt. Gas Dept., San Diego Gas and Electric Co.

A. H. Sutton, President, Mission Water Heater Co.

CONVENTION CALENDAR

SEPTEMBER

Sept. 22-23 **Pacific Coast Gas Association** Annual Meeting, Ambassador Hotel, Los Angeles, Calif.

OCTOBER

Oct. 5-7 **National Safety Congress** Hotel Sherman, Chicago, Ill.

11-13 **American Gas Association, Annual Meeting** Jefferson Hotel, St. Louis, Mo.

NOVEMBER

Nov. 29-Dec. 3 **American Society of Mechanical Engineers** New York, N. Y.

DECEMBER

Dec. 6-10 **National Association of Manufacturers** Waldorf Astoria Hotel, New York, N. Y.

Obituaries

"ED" SWENSON

JOHN EDWARD SWENSON, for the past 15 years in charge of house heating sales for the Minneapolis Gas Light Company, died July 30.

Called "Ed" by his many friends, Mr. Swenson was employed by the Minneapolis Gas Light Company for 31 years. He was born Nov. 1, 1891 in Minneapolis. While the early part of his service with the company was spent as shop foreman, he is best known for his work in the house heating department which has a record of approximately 18,000 gas heating installations.

Mr. Swenson was a member of the Minneapolis Engineers' Club, the Mid-West Gas Association and past president of the Minnesota Chapter of the American Society of Heating and Ventilating Engineers. He was secretary-treasurer of the Veterans' Club.

CHARLES M. GROW

CHARLES M. GROW, former sales manager of Southern California Gas Company, died July 27 in Los Angeles. He was 73 years old at the time of his death. He had retired in 1935 after 42 years continuous service with the company and predecessor companies.

During the 18 years Mr. Grow was the company's sales manager he was active in pioneering natural gas in internal combustion engines for water pumping, the exploitation of the gas refrigerator, and the promotion of natural gas for steam heating for large buildings.

He was active in gas industry affairs, serving as chairman of the Pacific Coast Gas Association's Commercial Section for two years and winning the Basford Trophy both years.

H. H. McINTIRE

HAROLD H. McINTIRE, purchasing agent for the Rio Grande Valley Gas Company, Brownsville, Texas, since 1932, died August 11. He was 51 years of age.

Mr. McIntire was widely known in the natural gas industry and regularly attended the annual meetings of the American Gas Association. Prior to going to Brownsville, he was associated with the Hope Engineering Company from 1917 to 1932.

CHARLES H. B. CHAPIN

CHARLES H. B. CHAPIN, for many years secretary of the Empire State Gas and Electric Association, New York, died August 14 at the age of 67. His home was at 72 Dwight Place, Englewood, N. J.

Mr. Chapin received a civil engineering degree from Yale University in 1896.

Centralized Telephone System Expedites Handling of Customer Calls

By R. D. Lewis

Advertising Manager, The Laclede Gas Light Co., St. Louis, Mo.

Elmer L. Ramsey, manager of customer relations for The Laclede Gas Light Company

A general view of the central order table with operators at positions

THE greater part of the business of a public utility with its customers is done over the telephone. Realizing the importance of these telephone contacts in the matter of building better customer relations, The Laclede Gas Light Company set out several years ago to develop, as far as possible, the best system for rendering this type of service.

The thing we sell the customer is service. He is not primarily interested in the pure mechanics of service, but he knows first-class service when he gets it. When a customer calls the company by telephone, it has to do with the service he has bought. It may be information he seeks, it may refer to trouble on the line, it may involve a bill or a score of other things. But briefly, it is service in one form or another. But the best trained employees can often be handicapped by outmoded equipment.

After studying other systems throughout the country, the matter was presented to the technical stff of the Southwestern Bell Telephone Company with certain recommendations. The system developed by Bell engineers, at a cost of approximately $50,000 for equipment alone, complemented by the thorough training of all public contact employees, has paid dividends in improved customer good will, according to Elmer L. Ramsey, manager of customer relations for Laclede.

Above is the new Central Service Building which houses the customers' service telephone equipment. At left is shown the open order desk adjacent to the central order table where duplicate orders are held on file for reference until the order has been completed

Service calls of a varying nature are received by Laclede, often at the rate of about 1000 a day, and before installation of the centralized system, it was sometimes necessary to hold a call waiting for as long as eight minutes. Since the new installation went into operation the maximum waiting time has been *30 seconds*.

Figures indicate that the new system saves the customer an average of two minutes on every service call, or a total of 8000 hours during the 250 business days of the year.

The Laclede installation consists of a central order table and a dial PBX system at a new centrally-located service building. This required a modification of an existing dial PBX system at the downtown general office building.

The central order table, with positions for sixteen operators, eight on each side, is assigned a special number, and customers are directed to call this number for the transaction of all normal business with the company. A second number is listed for calls to the general offices and for calls to individual employees.

Thus at the central order table, trained operators handle requests for turning on or off gas or electric service, adjustment of appliances, leak complaints, explanation of items appearing on bills and matters pertaining to collection of bills.

Fifteen lines interconnect the central order table with the general office switchboard for calls between stations or misdirected calls.

Each operator at the central order table is equipped with a three-line key cabinet, which enables her to call departments for

information and, when necessary, permit the customer to talk direct with the department.

Since the company's customer accounting department remains in the downtown general offices, the operators at the central order table must call the accounting department for information on customers' bills. These calls are handled over rotary PBX stations —each billing zone being provided with three stations.

With this system, it is possible to carry on a three-way conversation, between the operator, the customer, and the department which it is necessary to reach in order to complete the transaction. The customer remains "on the line" at all times.

Before this system was employed, the handling of calls was often confusing to the customer and employee alike. The customer either had to know what department he wished to reach, or give some explanation of his business to the operator. The operator then endeavored to route the call to the proper department but could not always be right. A transfer often was necessary and often the customer had to explain his request the second time. If several departments were concerned, a third explanation was sometimes necessary.

Calls "Stored Up"

Another unique feature of the equipment is the storing circuit, which "stores up" all incoming calls that cannot be handled immediately. These "stored-up" calls pass out automatically to the first idle operator in the order in which they are received.

The metering device is another feature in which the total number of calls handled daily by each operator is obtained. These meters also show the number of calls that went into storage. They are read every thirty minutes each day while the operators are on duty.

Service observing and supervisory facilities for determining the grade of service rendered, speed of answer, load conditions and like matters, are provided.

A channel with conveyor belt bisects the central order table which carries orders direct from the operators to the open-order desk. Carbon copies of all incompleted orders are kept on file in the open-order desk, for ready reference in the event of inquiry. A dispatching table adjoins the open-order desk, which likewise is reached by the conveyor belt. After passing through the open-order desk, the orders are sent to the dispatching table.

All operators are selected with consideration for their ability in handling this kind of work. Courtesy, tact, temperament and voice are characteristics that are desired and all employees are given a course of instruction before actual duty on the order table.

The forty-eight customer contact employees who comprise the telephone and personal contact divisions attend weekly instruction meetings. Problems encountered in actual practice are brought up for consideration and this method of instruction has been found most effective and beneficial, according to Mr. Ramsey.

The importance lent to the new telephone service is evident by the fact that it was responsible for the new Central Service Building, erected at a cost of $140,000, which also houses a storeroom and quarters for the installation and street departments.

In summing up, the new system expedites the handling of calls from the public, as follows:

(1) A customer tells his story but once. (2) The first voice the customer hears carries him all the way through to the successful completion of the inquiry. (3) A customer is given attention through every second of the transaction. There is no waiting, no transfers, no holding a silent line, wondering if he has been forgotten. (4) Any peculiar problem, irregularity or error is corrected or handled by the first company employee answering the telephone. Never, under any circumstances, is a customer required to make additional calls or asked to repeat his request to another employee when such request is the usual type of service call.

Symposium on Public Utility Valuation

THE Journal of Commerce of New York City has recently published a timely 44-page symposium entitled "Public Utility Valuation: The Issues at Stake and the Consequences." The symposium is made up of 19 articles contributed by nationally known professors, lawyers, economists, engineers, accountants, and financial advisors, all expert in problems of public utility valuation.

Section 1 deals generally with principles of utility valuation and covers such typical subjects as the fair value concept, judicial functions in utility valuation, cost versus fair value and the history of public utility valuation in the courts. Section 2 deals with utility valuation in practice in which are discussed valuation policies of state and federal regulatory commissions and the effects of price inflation on utility valuation policies. Section 3 contains analyses of various valuation policy effects from the point of view of the consumer interests and investment risks.

Practically all the statistical material presented relates to the electric power industry; the general principles discussed, however, are equally applicable to all phases of the gas industry.

The common theme running throughout all the articles is the inherent and fundamental unsoundness of the theory of "aboriginal cost" in valuation of public utilities for rate making and other regulatory purposes. Although exponents of that theory urge it for reducing rates of utility services, the general adoption of that theory would threaten future expansion of public utilities and thus jeopardize further reductions in their rates.

Copies of the symposium may be obtained from the Journal of Commerce, New York City, at 35 cents a copy.

—R. J. LeB.

Controllers Elected

LLOYD D. TRACHT, assistant secretary of the United Gas Corp., operating division, has been elected a vice-president of the Houston Control of the Controllers Institute of America.

Victor C. Seiter, controller of the Citizen's Gas & Coke Utility, has been re-elected a director of the Indianapolis Control of the Controllers Institute of America.

Conference Proceedings

PROCEEDINGS of the joint A.G.A.-E.E.I. Accounting Conference held in Cincinnati, Ohio, April 27-28, are available at American Gas Association headquarters, 420 Lexington Ave., New York, N. Y., at $2.00 per copy.

Wins Rate Rise

THE U. S. Circuit Court of Appeals, July 26, reversed a District Court order setting aside a rate increase allowed the Washington Gas Light Co. by the Public Utilities Commission. The rate increase approximates $200,000 annually.

The Office of Price Administration and the Office of Economic Stabilization had fought the rate increase as tending to produce inflation. OPA officials said the Circuit Court's order would be studied further before a decision was reached on what, if any, additional action might be taken by the stabilization agencies.

The Utilities Commission's order granting the rate increase provides that if the company earns excess profits income it must make refunds to customers. Some OPA officials believe the company this year will be in the excess income bracket and that so far as company earnings are concerned the rate increase would be of little benefit. The stabilization agencies had maintained that rate increases which would produce excess income would be inflationary.

Essential Fuel

GAS is an essential fuel in the laboratory and testing kitchens of America's great food and manufacturing companies. The modern gas range is utilized daily in the famous Sealtest Kitchens; in the kitchens of Best Foods, Inc., and General Foods. An institutional gas range dominates the modern testing kitchen of the United Fruit Co. on a pier along New York's waterfront where recipes for the best uses of bananas are prepared. The revolutionary "flameware" (or Pyrex glass cooking utensils) was developed in the gas testing kitchen of the Corning Glass Works where experiments proved the saving in gas through the use of glass which has some decided advantages in absorption and retention of heat.

Post-War Appliance Committee Analyzes Pacific Coast Contest Results

EARLY in 1943 the Women's Committee of the Pacific Coast Gas Association initiated a contest among women employees of gas companies, soliciting ideas for features desired on new gas ranges. Gladys Warren, chairman of the Women's Committee, requested the Association's Post-War Appliance Committee to act as judges in the contest. In order to extend the scope of the contest to include appliances other than ranges and to tap the opinions of well-informed personnel, this committee initiated two additional contests, one applicable to sales and home service people and the other to servicemen. All three contests were run simultaneously and prizes totaling more than $1,000 face value in war bonds and stamps were offered. Gas companies were urged to hold preliminary contests among their own employees. Many of them did so, offering additional prizes.

It was felt that the Women's Contest reached a group of people who for the most part were users of gas ranges and whose opinions would be very similar to those of women customers. Sales and home service people, because of their contacts, were felt to be better informed as to appliance features which may be popular or unpopular with buyers and users.

Servicemen were relied upon to discuss construction features which may have caused particular satisfaction or trouble to them or owners.

The contest came to an end on May 30, the papers have been judged, and this is an attempt to analyze their contents for the benefit of manufacturers who may be working on new designs.

Scope

In all 409 papers were submitted as follows:

Women personnel	155
Sales and home service personnel (mixed men and women)	114
Servicemen	140
Total	409

The suggestions came from both manufactured and natural gas territory as follows:

Washington, Oregon and British Columbia (manufactured)	82
Northern California (natural)	143
Southern California (natural)	184
Total	409

Contributed by the Pacific Coast Gas Association

General Observations

Three immediate conclusions can be drawn:

1) Modern gas appliances as they are now are very good indeed and suggestions as to improvements are concerned mostly with gadgets and arrangement which are matters of personal opinion rather than a general criticism of the appliance.

2) In the vast majority of cases these suggestions apply equally to competitive coal, oil or electric appliances.

3) While some of the suggestions are novel, there are none of a revolutionary nature. For the most part there is an appliance already in existence embodying the thought expressed to some degree. To this extent the contest is an expression of preference for specific features. This in itself is a valuable contribution to appliance designers.

Gas Ranges

Gas range ideas are legion. The ideal range will have the oven and broiler separate and both at least waist high. It will set flush with both wall and floor and be easily serviced from the front without moving. If this is not done it must be on castors so that it can be moved out for cleaning and adjusting. This implies a very flexible connection or one easily disconnected and reconnected. A lot of people think the operation of clocks should be improved and made less complicated for the average housewife.

The most popular accessory is the insulated automatic deep well cooker, or built-in pressure cooker. Many want some thermal or time control on at least one top burner. Nearly everyone wants a transparent oven or at least one with a glass door. Women dream of an oven lining in one piece that can be taken out for cleaning.

The cry for color is a reaction against the white and black ranges recently offered. The lights on some ranges apparently do not light the entire cooking top. These are unpopular but so also are the lights set high on a goose neck. An appreciable number do not like the light at all. They say this and the salt and pepper shakers, storage drawers, etc. are dust collectors.

Push button valves and controls selective of burner opening are asked for by a few. The idea comes from radio selector buttons. One salesman goes so far as to suggest three buttons for the broiler control, marked rare, medium and well done. Several believe in the idea of having the top burners, oven and broiler built separately and built into the kitchen working surfaces as most convenient. Some specific suggestions follow:

Part of oven come on at one time and part later so that two items with different cooking times could be placed at one time. Or have a section outside of oven in which to place the second item so it would automatically slide into oven at right time.

Controls on a 45° slant and push buttons instead of handles.

Range should be made to be installed at right angles to wall. This would be appropriate to large kitchen.

Suggestion for combination unit containing refrigerator, dishwasher, sink and storage.

Oven, dishwarmer and broiler adjustable in height using pedal elevating device. Vertical broiler. Oven lining removable for cleaning. Oven racks—ventilated glass trays usable also for baking trays. Top burners covered with duroglas plate with plastic or asbestos setins over burners. With cover down these can be used for simmer or warming. Plate can be used as griddle. Valves like organ stops.

Have grill under two burners, the assemble being mounted on shaft so it can be rotated to bring grill on top.

Combination deep well cooker and pressure cooker by changing lids. Usable also as a food warmer.

Suggestion for corner fitting range. Also semi-circular front with round oven.

A deep well cooker equipped with a round burner at bottom and a vertical burner so that well could be used as a broiler and roaster. Cage to be rotated on center shaft.

Inclusion of a spice cabinet.

Broiler should have heat control with finished signal. Should be provided with serving tray, round or semi-cir-

cular in shape, which can be used on table.
Suggestion and sketch of tube type burner.
Oven opening on top, push button control to raise grids out of compartment.
Suggestion that ranges be given neutral ground color at factory final color to be put on by buyer.
Suggestion of method for fixing front panel to make top burners easy of adjustment. Valves recessed thickness of oven door insulation so cover comes down over them. Also a "roll-top desk" cover which when rolled up will act as hood with opening to connect with exhaust fan.
Get top burner grids flush by leaving more space for top burner aeration and venting as in closed top ranges. Put valves vertically on flat shelf in front.
Suggestion of a design for clock control for top burner.
Suggestion that two top burners be controlled by throttling thermostatic valve with element immersed in cooking pot. Stored when not in use.
Specialty storage racks to replace drawers.
Range with four deep wells—no top burners—with suggestion for method of frying and thermostatic control.
Suggestion and sketch of burner layout for round range.
Suggestion and sketch of burner design for non-clog burner with air opening in side of venturi.
By-pass heat to vent when oven is used for broiling.
Suggestion of additional lighter port for lighting of Harper burner.
Slide geared to thermostat wheel containing cooking directions.
Suggestion and design for adjustable offset orifice. A greaseless cam-operated valve like an electric switch.
Suggestion and sketch of new method for taking primary air.
Suggestion and sketch of lubricated gas valve.
Valve with square hole for gradual shutoff and geared handle for fuel turn.
Suggestion and sketch of burner valve locks worked from top burner cover. Also electric ignition system.
Top burner temperature control.
Suggestion and sketch of an original oven thermostat.
Combination hot water boiler and pressure cooker.

Water Heaters

The present day water heater is obviously a very efficient and satisfactory appliance. People who visualize the water heater as a kitchen appliance want it to be of an attractive shape, flush to the floor, and possibly table top in height. They want quick recovery or larger tanks to insure constant service. To reduce costs a number suggest some automatic means to prevent heat loss during periods that water is not being used. Better insulation and an automatic damper which will close when the main burner is not on are the obvious solutions. Service men are interested in the accessibility of the burner, safety pilot and thermostat. They want these things where they can be reached and they want a door large enough so that the burner assembly can be taken out for adjustment and cleaning.

Another presented a sketch of a concealed draft hood. In essence it is a baffle in the vent outlet with relief holes in a chamber on top of the tank inside the jacket.

Heating Appliances

Suggestions for improvement in heating appliances deal largely with controls and installation. Evidently the distribution of heat has not been mastered. Modulating or throttling controls are recommended as well as more use of the unit system. One man suggested a compound burner to overcome heat lag. Only one recommendation for panel heating was received. Unnecessary noise on forced-air jobs was criticized. There is a sketch of a spring-loaded device for keeping a fan belt tight and a sketch of a fan type circulating heater.

The floor furnace receives the most attention due to its wide use in difficult situations. It is obvious more attention should be given to the accessibility of controls and provision for cleanout in this appliance. Two suggestions were received for a piping arrangement which would place all controls in the cold air space just below the register, and two more contained many suggestions leading to easier servicing of all furnaces.

The occasional flooding of floor furnaces brought the suggestion that a water-tight pan be made a part of the furnace and another that the furnace casing be made water-tight and air for combustion taken through a pipe leading from close to the floor line. Another suggestion is that a means be provided to open the cleanout door from above and that sufficient room to sweep out with a small broom be provided. Evidently service men find it very disagreeable to crawl under houses.

RIGHT THERE WE'LL HAVE A CP GAS RANGE!
BUY WAR BONDS TODAY FOR THE CP GAS RANGE YOU'LL WANT TOMORROW
THIS SEAL MEANS Certified Performance
You'll want a new CP Gas Range in your kitchen after the war is won. For CP Gas Ranges are built by America's leading manufacturers to meet the highest standards of the American gas industry. These are the Ranges that give you Cooking Perfection. No wonder they set the standards by which all other cooking appliances are judged. Plan now to have a CP Gas Range in your post-war kitchen. And remember, when it comes to economy, speed, convenience and performance, Nothing Equals Gas for Cooking.
DEALER OR COMPANY NAME

One of series of CP gas ads made available to gas companies

Refrigerators

The big demand on refrigerator manufacturers is for plenty of storage space for frozen foods. Very few demand quick freezing facilities. Other persistent requests are for adjustable shelves and several want revolving shelves or other handy means of reaching receptacles placed in the rear. Service men want leveling screws and some means of cleaning the fins. Suggestions in this regard range all the way from putting the box on castors so that it can be moved for cleaning in the back to providing a built-in vacuum cleaner. Two suggest the provision of an automatic defroster, one by means of an auxiliary burner.

CP Gas Ranges Promoted for Post-War Markets

LOOKING forward to rich post-war markets, plans to keep Certified Performance Gas Ranges before the American public have been announced by the CP Range Division of the Association of Gas Appliance and Equipment Manufacturers.

Advertising and publicity is being directed towards assisting gas companies, gas range dealers and department stores to publicize "Gas for Cooking" and "CP Gas Ranges for Cooking Perfection."

In addition to trade publication advertising, an advertising mat service has been made available for use in local newspapers by retailers and gas companies. The theme of these ready-to-print advertisements will be, "Buy War Bonds Today for the CP Gas Range You'll Want Tomorrow."

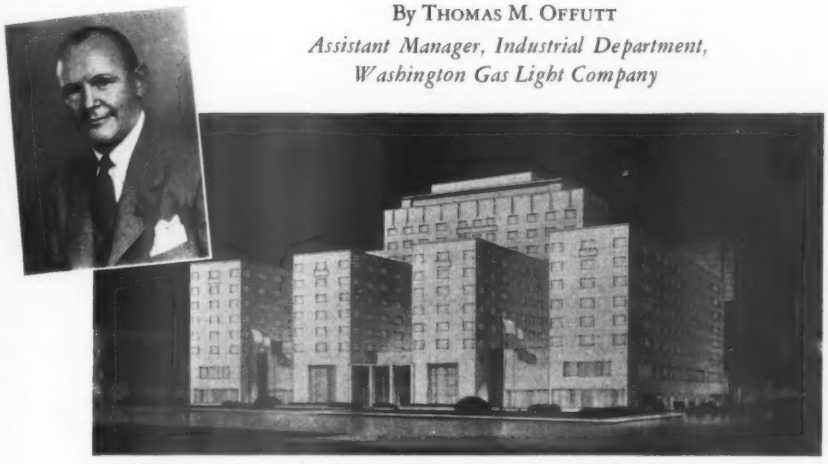
The Certified Performance Gas Range Program was inaugurated by the gas industry back in 1938 to establish uniform high standards for gas cooking appliances and to serve as a buying guide for the public. Many manufacturers incorporated the Certified Performance features in their ranges and more than a million dollars was spent in promoting and advertising the CP seal. Gas companies actively supported the program because it provided an opportunity to obtain better grade merchandise in their customers' homes. The program was also actively supported by gas range dealers and department stores in all parts of the country.

As a result of the CP program, utilities and dealers alike reported increased unit sales of all gas ranges and substantial increase in the average selling price per range.

Specifications of post-war CP gas ranges are now being considered by the combined Post-War Planning Committees of the American Gas Association and the CP Gas Range Division of the Association of Gas Appliance and Equipment Manufacturers.

Gas Kitchens Chosen for Washington's Newest and Largest Hotel

By Thomas M. Offutt
Assistant Manager, Industrial Department, Washington Gas Light Company



Washington's Hotel Statler. Inset is Fred G. Kenny, manager of the hotel

WASHINGTON'S biggest business, next to Government, is the tourist trade. This and its political and diplomatic activity always have caused it to be recognized as one of the country's top-flight hotel towns. Long before wartime conditions had begun to impose severe housing and feeding problems on its hostelries there was an urgent demand for additional accommodations—particularly for proper facilities to serve the hosts of ranking industrial and diplomatic figures constantly journeying to the nation's capital.

The Statler organization, making a study of this situation a few years ago, perceived the need for a huge hotel, similar to its successful enterprises in many other cities. A local survey and the vast experience of the chain dictated the selection of a site at 16th and K Streets, N. W., within three blocks of the White House and easily accessible to all important government buildings. Upon that ground, purchased at a cost close to a million and a half dollars, has been erected in the full Statler tradition one of the world's most magnificent hotels. Fittingly gas was selected for use throughout its four large kitchens and two bakeries where appliances consume a million cubic feet of 600 B.T.U. mixed gas a month.

Always of importance to the successful management of any hotel, the preparation and service of fine foods is a matter of special concern in Washington where the clientele includes not only discerning Americans but often representatives of foreign countries accustomed to unusual fare. Ability of the management to meet the varying demands of its guests is held to be due in no small part to the careful selection of the all-gas cooking equipment.

Engineering and planning of the kitchens and bakeries were under the supervision of W. R. Leber, chief engineer of the Statler organization, who was operating under the direction of John L. Hennessey, executive vice-president of Statler. The equipment was furnished by the P. B. Polhemus Company.

The main kitchen includes the following gas equipment:

14 sections of solid top hotel ranges; 2 hotel salamanders; 2 hotel broilers; 2 roast ovens; 4 frialators.

The banquet kitchen includes:

5 hotel broilers; 5 solid top hotel ranges; 2 hotel-type salamanders.

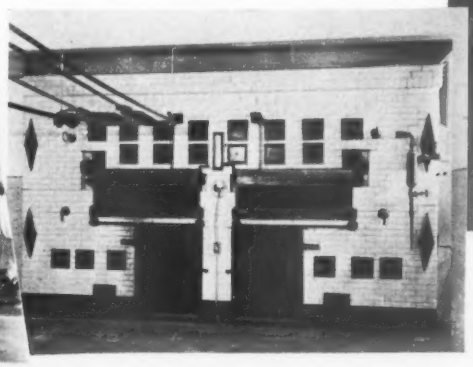
The coffee shop kitchen includes:

1 10-burner short order stove; 1 toaster; 3 broilers.

The help's cafeteria includes:

2 solid top hotel ranges; 1 hotel type salamander; 1 toaster.

Part of island battery of heavy duty gas ranges and broilers in main kitchen. Center picture shows gas-fired brick hearth oven—backbone of the bread bakery



Splendid modern gas cooking equipment in which food for banquets is prepared. Shown here are hotel gas broilers, solid top ranges and salamanders

The pastry shop includes:

1 3-deck bake oven; 1 confectionery stove; 1 hot plate.

The bread bakery includes:

1 peel-type bake oven.

All of the above equipment is the most modern of its type available. Every broiler and salamander is ceramic equipped, and all ranges are fully insulated and incorporate heat-controlled ovens. The gas bake ovens are highly efficient, modern baking machines, each type being selected because of its adaptability to the particular job required of it.

Washington's newest and largest hotel serves approximately 2,500 meals daily to its guests, divided as follows:

Coffee Shop	700 meals
Embassy Room	850 meals
Colony Room	300 meals
In Private Dining Rooms	700 meals
(On Saturday night 1,300 meals are served)	additional

The Statler has five private dining rooms and four banquet rooms. Eleven hundred and thirty-eight employees are required for service to dining room guests and the overnight guests who invariably fill the entire 850 room hotel to capacity. More than a hundred and fifty are turned away each day.

Head of the Washington Statler's great organization is Manager Fred G. Kenny, formerly manager of the Detroit Statler and earlier the hotel Pennsylvania in New York; he has been associated with the Statler chain in an executive capacity for twenty-five years. The hotel's able kitchen staff is topped by Louis Fiora, chef de cuisine, whose career has included service as assistant to the famous Oscar of the Waldorf.

The Statler opened in Washington January 18, 1943, construction having begun early in 1941. Already the hotel has been host to scores of famous guests, including high government officials, foreign ambassadors and ranking military leaders.

Architects who designed and supervised construction were Holabird and Root of Chicago with A. R. Clas of Washington as associate. The general contractor was John R. Harris Associates of New York City.

Our Restaurant Customers

THERE are 248,000 eating establishments in the United States, according to a recent statement of the American Restaurant Association. The total sales per annum are $3,500,000,000 for food and beverages. As 90% of these establishments are individually owned, mostly by small operators, both men and women, the Restaurant Association points out that the restaurant is truly representative of "small business." All restaurants are being hard hit by food shortages, rationing and labor turnover.

The Latest With Gas In War Plants

Gas heat-treating equipment has come a long way since the last war when heat treating was done by big men with strong muscles who stood hour after hour before hot, roaring furnaces. The phenomenal advance in direct, high speed heat treating with gas the Committee on Industrial Gas Research points out, now enables women war workers to handle as great or greater production in less time than it took the old timers in the last war period. Needless to say the advanced types of gas heat treating are contributing a lot to the general morale of war factories. (Photo, courtesy The Selas Company)

Radiant Gas Heat Described by Mann

AT the third annual convention of the American Electroplaters' Society held this summer in Buffalo, New York, Carl P. Mann, Manager, Drying Division, The Selas Company, presented a paper entitled "Radiant Gas Heat in Baking, Curing and Drying Operations." Mr. Mann covered this subject from the standpoint of equipment development, comparisons with other source of energy, and economics. The complete paper, fully illustrated, will appear in the Proceedings of the American Electroplaters' Society which will be published in either September or October.

Radiant gas heat in baking, curing and drying operations has been the subject of a research project by the A. G. A. Committee on Industrial Gas Research. This project, which the committee assigned to The Selas Company, was first reported on by Mr. Mann at the A. G. A. Conference on Industrial Gas Sales in 1941.

Foundry Congress To Meet in Buffalo

THE War Production Foundry Congress of the American Foundrymen's Association will be held in Buffalo, N. Y., the week of April 25, 1944. Provision will be made for suppliers of equipment and materials to demonstrate their products in exhibit booths although certain wartime restrictions will apply to these displays.

Open-Hearth Alloy Steel

A TREND has developed in the alloy steel industry which some regard as definite and important. In the early days of the war the demand for alloy steels became so great that steel men were consulted as to whether any relief could be afforded by the use of open-hearth furnaces. It was thought that some of these much needed alloy steels could be made in such furnaces thus relieving the pressure on the electrics.

Since that time, it is reliably reported, there has been a transfer of more and more high nickel armor plate steel from manufacture in electric to production in open-hearth furnaces. It is believed that a substantial proportion of this tonnage is now being made of open-hearth steel.

The growing scarcity of nickel forced the War Production Board later to demand other types of alloy steels, which has led to the development of a great variety of steels, usually low in nickel such as the N.E. and other steels, which are now being made in open-hearth furnaces.

To what extent these developments in the alloy steel industry have spread and what the tonnages are, we do not know. A canvass of the industry would be necessary to answer this question. But that the trend is definite seems conclusive. One authority expresses the opinion that such steels will never again be made in electric furnaces.

The foregoing is but one of the many reallocations that are the results of the war, as are many other changes in metallurgy and metallurgical engineering practice. The story of these will make interesting reading when the "lid is off."

—Editorial in "Metals & Alloys."

Open-hearth furnaces fired with gas are playing an important part in this significant trend.

Enters Heat-Resisting Alloy Field

WHITEHEAD Metal Products Company, well known distributors of corrosion resisting metals that are extensively used in manufacture of tanks, has entered the field of high temperature heat resisting rolled alloys. Headquarters are at 303 West 10th Street, New York City.

Technical SECTION

HAROLD L. GAIDRY, *Chairman*
CHARLES F. TURNER, *Vice-Chairman*
A. GORDON KING, *Secretary*

Natural Gasoline Enrichment of Producer Gas for Use in Underfiring Recuperative Type Solvay Coke Ovens

By W. O. KEELING

Research Department,
Koppers Company, Pittsburgh, Pa.

THE Milwaukee Solvay Coke Company operates two batteries of Koppers Becker ovens and two batteries of Solvay recuperative type ovens. The Koppers ovens are underfired with producer gas, releasing all the coke oven gas made for sale to the affiliated Milwaukee Gas Light Company, which distributes the gas in the City of Milwaukee. In the past, the Solvay ovens have been underfired with coke oven gas, leaving only the surplus gas they produced for sale to the affiliated company.

Approximately 4,000 M cu.ft. of coke oven gas per day are used in underfiring the Solvay ovens. If this gas could be released by use of another gaseous fuel, the coke oven gas output of the plant could be increased by approximately 12%. But experience had shown that the Solvay ovens could not be underfired successfully with a gas having a heating value of less than 385 B.t.u. per cubic foot. Hence, producer gas or even blue gas could not be used. Nor was the use of carburetted water gas indicated because the coke oven gas was desired for peak load purposes; and if a carburetted water gas machine had to be installed, it might as well have been installed and used to directly produce a corresponding volume of peak load water gas.

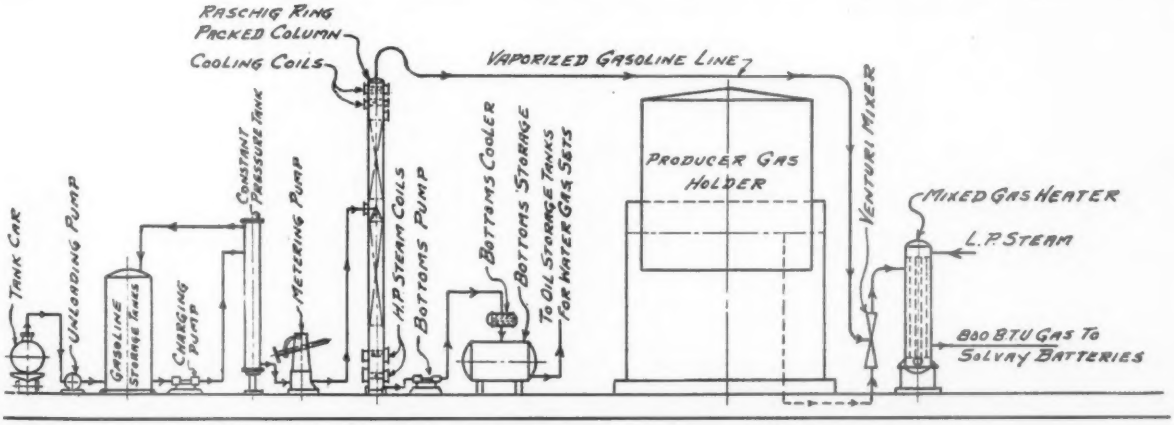
In normal times, propane or butane could have been used to cold carburet air or producer gas and the resulting mixtures then used for underfiring. In fact the plant engineers had already carried out experimental work which demonstrated that an air-butane mixture could be used. But, unfortunately, when the time came that the additional coke oven gas was urgently needed, it was impossible to secure the necessary butane storage tanks. And even if the storage tanks could have been secured, it was doubtful that butane in sufficient quantities could be secured or transported to the plant, because the synthetic rubber program was then in its early stages of development and it was feared that most of the available butane would be required for the rubber program and that tank cars suitable for transporting the butane would be needed to carry liquefied butadiene from its source of production to central polymerization plants.

Faced with these conditions, J. A. B. Lovett, president of The Milwaukee Solvay Coke Company, requested the Koppers Company to devise a method for releasing the coke oven gas for peak load purposes. The method could not require critical materials or equipment, and the equipment was to be such that it would be reasonable in cost and could be largely fabricated in the company's shops and erected by the company's engineers and personnel. Furthermore, the necessary equipment had to be installed and ready to operate by December, 1942.

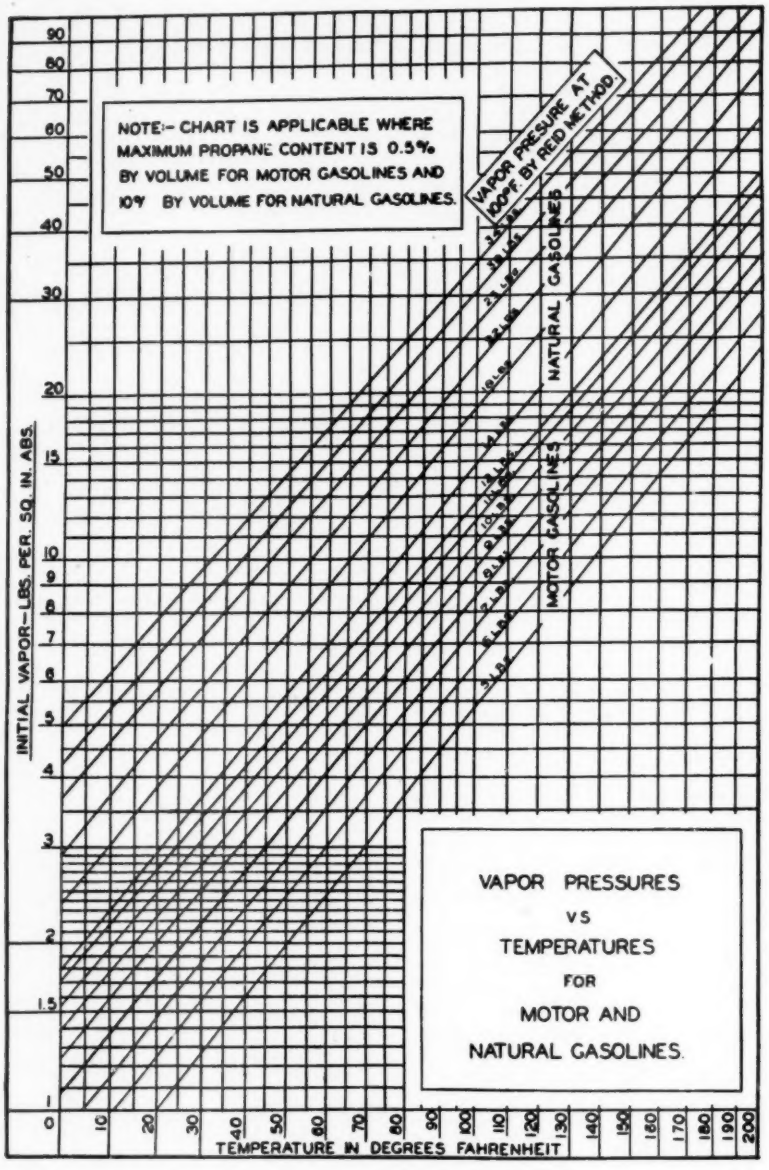
It was found upon investigation that there was a plentiful supply of so-called natural gasoline available in the mid-continent oil producing areas and that the supply of this material would be but little affected by any forseeable demands of the synthetic rubber program. The material was cheap in price and could be transported in readily available types of tank cars because of its low vapor pressure. This latter factor also made possible its storage in ordinary steel tankage of reasonable strength. A number of different grades of natural gasoline are available. The grading usually is based on Reid vapor pressure at 100° F. and the per cent distilled at some fixed temperature, usually 140° F. The accompanying graph shows the different grades. Two representative samples of natural gasoline investigated had properties shown on the following page. It is apparent that a large percentage of at least these two natural gasolines is of sufficient volatility to be useful in carburetting fuel gas. For this reason, natural gasoline was selected as the carburant for enriching the substitute underfiring fuel.

With the selection of the carburant, there remained only the problem of its vaporization and admixture with the base gas and the selection of the base gas. Producer gas rather than air was chosen, because its use

Presented at Joint Production and Chemical Committee Conference, New York, N. Y., May 24-25, 1943.



Natural gasoline enrichment of producer gas for use in underfiring Solvay coke ovens


NOTE:- CHART IS APPLICABLE WHERE MAXIMUM PROPANE CONTENT IS 0.5% BY VOLUME FOR MOTOR GASOLINES AND 10% BY VOLUME FOR NATURAL GASOLINES.
VAPOR PRESURE AT 100°F. BY REID METHOD
NATURAL GASOLINES
MOTOR GASOLINES
INITIAL VAPOR—LBS. PER. SQ. IN. ABS.
TEMPERATURE IN DEGREES FAHRENHEIT
VAPOR PRESSURES VS TEMPERATURES FOR MOTOR AND NATURAL GASOLINES.

	Sample from Phillips Petroleum Co. % by Volume	*Sample from Carter Oil Co. % by Volume*
Butane	36.17	30.65
Iso-pentane	10.02	17.95
Pentane	12.42	22.05
Iso-hexane	3.81	—
Hexane	11.33	29.35 Hexane and Heavier
Iso-heptane	8.25	
Octane and heavier	8.87	
Other Properties		
Reid vapor pressure at 100° F.	26 PSI (abs.)	24.5 PSI (abs.)
Initial boiling point	(not given)	62.6° F.
% off at 140° F.	70.0	81.5
90% off	275° F.	—
End point	375° F.	288° F.

To determine the gage working pressure of a vessel to store any natural gasoline:

1. **Determine the maximum liquid surface temperature reached or likely to be reached by the liquid during the period of storage.**
2. **The vertical temperature line intersects the Reid vapor pressure line for the liquid being considered at a definite point.**
3. **From the curve determine the initial vapor pressure in pounds absolute at the left-hand side horizontally from the intersection mentioned in "2."**
4. **From the initial vapor pressure in pounds absolute subtract 14.7. The result is the gage working pressure of the vessel required to store that liquid, without evaporation loss.**

eliminated any possibility of back-firing from the oven flues through the gas mains in case equipment failure caused an explosive mixture to accumulate in the gas mains, as could happen when using air.

Investigation also disclosed that the carburetted gas must have a low dew-point because part of the gas mains and branch headers were exposed to wind and temperatures well below zero degrees Fahrenheit. This meant that when carburetting producer gas to 800 B.t.u. per cubic foot, the heating value finally selected, the gas must contain no hydrocarbons which would condense out at a minimum temperature of at least —10° F. But all samples of natural gasoline investigated contained appreciable quantities of hydrocarbons boiling as high as 400° F. and the cheaper grades would vary considerably in composition from shipment to shipment. To meet this situation, it was decided to combine fractionation with vaporization and to separate out of the gasoline actually used for enrichment, the hydrocarbons having boiling points exceeding a selected temperature. The hydrocarbon residue remaining was then to be used as the carburant in making carburetted water gas.

With the foregoing data at hand, the design of suitable carburetting equipment was worked out, shown schematically in the flow diagram.

Method of Operation

The method of operation was quite simple. Natural gasoline was unloaded from tank cars into the plant storage tanks. From there it was picked up by a reciprocating pump and forced into a constant pressure tank to insure that it could be drawn into the metering pump under sufficient pressure to prevent vapor-binding of the metering pump with a consequent fluctuation in the volume of gasoline delivered by the latter. The metering pump then pumped a steady, uniform quantity of gasoline, per unit of time, without preheat into the midpoint of a raschig ring-packed column. Steam coils in the base of the column provided heat for vaporizing the desired frac-

tions of the gasoline and the vaporization of the lighter ends of the gasoline in the stripping section of the column furnished enough reflux material to insure a very satisfactory separation of the charge into vapors containing but a very small fraction of hydrocarbons boiling above a selected temperature and yet stripping of the light fractions from the bottoms was thoroughly done. The vaporized fractions passing upward through the fractioning section were contacted with a small amount of reflux provided by simple pancake cooling coils in the top of the column and then passed out of the column through a pressure-control valve into a vapor line leading to a venturi mixer.

Producer gas was forced from a producer gas holder, under pressure supplied by weights, into the venturi mixer where it was mixed with the gasoline vapors from the column. The mixture was then passed through a heater in which it was heated to a temperature high enough to prevent condensation of water vapor with which the producer gas was saturated. The mixture was then discharged directly into the gas main leading to the flues of the Solvay ovens.

Operating Flexibility

The unit had sufficient operating flexibility that almost any type of gasoline from propane to motor gasoline could be used for carburetting the fuel gas. The particular operating conditions, selected for the type of natural gasolines used, were such that the gasoline was "cut" between the hexans and heptane fractions. The bottoms had an initial boiling point of approximately 185° F., an end point of approximately 430° F., and an API gravity of approximately 58° F. It made an excellent enriching oil for carburetting water gas.

The unit was put in operation the fifteenth of December and continued in operation until April 1 of this year, when the need for peak load gas no longer existed. The results obtained were highly satisfactory and exceeded the design calculations.

A noteworthy feature of this particular installation is that it may be truly said to have been constructed of material from the scrap heap. For with the exception of the metering pump, a liquid level control in the base of the column, the pressure regulating valve in the vapor outlet from the column, and the venturi mixer, the materials used for construction came from scrap or discarded equipment. The gasoline storage tanks were ordinary gasoline storage tanks purchased from a bulk station quitting business. The column was rolled from scrap plate and welded throughout. Steam coils and cooling coils were made from ordinary steel pipe. The bottoms cooler was a shell-and-tube type heat exchanger, which had been discarded. The bottoms storage tank was a discarded benzol storage tank and the mixed gas heater was an old discarded re-heater which had been retubed. The total cost of the installation was less than $60,000.

Judging from the results obtained from this particular installation, it would seem that natural gasoline is a suitable carburant for cold carburetting air or a low B.t.u. base gas to a mixed gas having heating values of between 300 and 1,000 B.t.u.'s per cubic foot where the specific gravity of the carburetted gas is of minor importance and where the gas will not be preheated to temperatures sufficiently high to crack the gasoline hydrocarbons prior to combustion. Such a cold carburetted mixed gas will have a low dew-point if the heavy components of the natural gasoline are separated from the lighter components prior to the carburetion step.

Book Review

"COKE FORMATION PROCESS AND PHYSICO-CHEMICAL PROPERTIES OF COALS"

By W. Swietoslawski. 145 pages; publ. by Polish Institute of Arts and Sciences in America, New York, N. Y. (Polish Inst. Series No. 1); Herald Square Press, New York,—1942; with a Preface by Professor H. L. Olin, Univ. of Iowa, Iowa City. Reviewed by Dr. Horace C. Porter, Consulting Chemist and Engineer, Philadelphia, Pa.; author of "Coal Carbonization."

THIS monograph, begun in Poland just before the invasion by Germany in 1939, is the outcome of investigations conducted under the author's direction during a period of years at the Chemical Research Institute, Warsaw. During recent years the author has been associated with the faculties of the University of Pittsburgh and State University of Iowa. The monograph is hailed by Prof. Olin in his Preface as marking "the first occasion of a major contribution to the literature of coal by a physical chemist deeply versed in the fundamentals of his subject." Whether or not this statement may be wholly true, the author unquestionably brings to his work on coal, here reported, the prestige of eminent achievement and valuable contributions over many years in the field of thermochemistry and other branches of fundamental science.

It is emphasized in the author's Introduction that the "main subject of the monograph is the physico-chemical properties of coals" and that the last several chapters (which have to do with carbonization and the coke formation process) are not concerned directly with this main subject. It would seem that the wording of the title hardly conforms to this intention on the part of the author. His definition of physico-chemical researches applied to coal is that they have to do with examination of properties or behavior of the coal or a mechanically prepared portion of it when submitted to "an action of physical agents"; the extracting or separating of any part of the material which might change the internal structure is considered to be outside of the physico-chemical.

Accordingly the first 82 pages of 141 treat of the study of these properties, and they cover: Coals as Inhomogeneous Systems, Petrographic Constituents, Classification Schemes, Softening Temperatures, Adsorption and Sorption Phenomena, Moisture Removal, Surface Activation, Ignition Temperatures (of various solid fuels), Plasticity, Briquetting without binder, Agglutination Capacity. Most of these subjects have a bearing on the behavior of coals under carbonization.

The last 60 pages cover particularly the studies of the coke formation process—the swelling phenomenon and how tested, the formation of various zones in a coking mass (emphasizing the plastic and pre-plastic zones and the "contracting or solidification zone, the critical zone of coke formation"), plastometric tests, agglutination tests, permeability of the plastic zone to gases, course of gas passage in coke ovens, permeability of the coke and semicoke to gases, heat transfer and "temperature wave" in the charge, behavior of mixtures of coals and of coals or cokes with pitch, carbonization of briquetted mixtures. He suggests that plastometric measurements could be much more valuable, if, on each coal, a series were run at widely varying rates of heating, one of which should approximate as closely as possible the rate prevailing in a coke oven.

The author's analysis of the coke formation process, particularly of what occurs in the "critical" contraction zone, leads him to conclude that addition of fine coke or "slack" to high-volatile coking coal cannot result in other than a deterioration of the coke strength, and for that reason this practice (except for the use of semi-coke) has been abandoned in industry in the last few years. This does not accord with the success attained with such practice in America, at several plants—an account of which has been published by Pfluke and a subcommittee of the American Gas Association.

The author's interpretation and use of the American (A.S.T.M.) system of classification of coals is confused, causing some misinterpretation of data.

Unfortunately, poor editorial check-up of diction, spelling and inaccuracy of expression,—due to no fault of the author,—mars the effectiveness of this valuable monograph, which, nevertheless, should be successful in stimulating thought and extending research.

The Ideal Gas Range

(Dr. Harold Hartley, Great Britain)

PERSONALLY, I think that the ideal type of cooker is the eye-level type, where the housewife has no need to stoop and everything is on her line of vision, and she is clear of all heat and fumes arising from the oven when the oven door is open; but there are very few kitchens today where that type of cooker can be installed.

DEHYDRATION OF VEGETABLES

(Continued from page 348)

densing liquids from the reflex condenser fall into a receiver graduated at the bottom to measure directly the volume of water distilled. A number of liquids is adaptable for this purpose but toluene appears to be the most generally used and for that reason it was employed in this investigation.

In initial moisture determination tests made at the Testing Laboratories the percentage of moisture obtained by this method was obviously too low from the appearance of the dehydrated vegetables. Information available at that time did not give very much detail as to technique in conducting the test. For that reason a very careful study of various factors contributing to the low results was made. The first samples of dried vegetables were cut by hand in small pieces. It seemed obvious that fineness of preparation would affect the results or at least govern the time required for completion of the distillation period. Hence, a Wiley mill was employed for grinding samples for moisture analysis. All samples were ground to pass through a 20-mesh screen. Some were ground to 30- and 40-mesh to determine the effect of particle size on results.

Effect of Particle Size

The effect of particle size in final results after a two-hour distillation period is illustrated by Fig. 15. This graph was drawn from average results of several tests on carrots, string beans, and peas and therefore does not indicate extreme differences found in some cases. Peas, for example, showed a far lower percentage of moisture when the test was made on the dried product without cutting or grinding. Only 2.0% moisture was indicated for whole peas while 7.0% was shown when a similar sample was ground to pass a 20-mesh screen. This large difference, undoubtedly, was due to the more compact structure of peas compared, for example, with carrots which are sliced before dehydrating. Higher percentages of moisture were indicated for 40-mesh grinding as shown by average results in Fig. 15. Even greater differences were indicated in some individual tests. This may be due in part to greater adsorption of moisture due to greater time required for grinding as well as more rapid rehydration of the more finely ground sample. On the whole, a 20-mesh grind appeared adequate. A photograph of the various stages of subdivision of string beans referred to above is shown as Fig 17.

In the initial moisture determination tests a period of 45 minutes was allowed for distillation of water from the dehydrated product. This particular time limit was selected on recommendation of an engineer who had made numerous determinations by the Bidwell-Sterling method. The percentage of moisture indicated in that length of time appeared to be too low from visual inspection of the samples, so tests were made using longer time of distillation until all water had been removed. This was found to usually require about 2 hours. Another technique found to be essential for a good clean-cut separation of moisture from toluene was to lightly heat with a gas flame the upper portion of the receiver to re-evaporate the moisture clinging to the glass wall so that it would condense in larger droplets which would fall to the bottom of the receiver.

Effect of Distillation Time

The effect of distillation time on amount of moisture indicated is represented by the three curves in Fig. 16. The points on these curves represent average results from a number of determinations in samples having approximately 5, 7, and 10% moisture. All samples were ground to pass through a 20-mesh screen. It will be noted that these curves are nearly parallel and all level out after a 2-hour distillation period. In other words, these curves indicate that a 2-hour distillation period is required to obtain the proper result. This period could be shortened somewhat if a finer grind were used as shown in the preceding section.

The longer distillation period found necessary raised the question as to the possibility of decomposition of sugars present in the vegetables to form additional water and thus give a higher value for moisture than that actually present. A careful study was made of existing literature and one reference* was found to show results of many moisture determination tests by both Bidwell-Sterling, vacuum oven and other methods. Results were presented which indicated a very close check between the two methods when toluene was used as the distilling liquid in the Bidwell-Sterling process. Surprisingly, materials high in sugar content such as jams and honey had a slightly lower moisture content by the Bidwell-Sterling method, thus showing that no sugar was decomposed by that process.

In order to verify results obtained by the distillation method a compartive test was made with a vacuum oven. This oven was maintained at 150° F. and under 27 in. Hg vacuum for 30 hours. A 2-gram sample of a 40-mesh grind in a 1.5 in. diameter glass weighing flask showed 10.2% moisture by weight reduction at the end of this period. The same material showed 11.0% by the Bidwell-Sterling method using a 40-mesh grind and 2-hour distillation. These results appear to check within limits of experimental error and therefore give further proof of the accuracy of the Bidwell-Sterling toluene method as employed in these tests.

After grinding a sample of dehydrated vegetable for a moisture determination it should not be exposed to the air any longer than necessary. The effect of such exposure on dehydrated carrots ground to pass through a 20-mesh screen is shown in Fig. 18.

* The Determination of Moisture by the Volatile Solvent Method, Jones and McLachean, Analyst 51-52 London, 1926-27, p. 386.

Sidelights of War

THIS war's demands show that a mechanized division burns up 18,000 gallons of gasoline an hour proceeding along a road at normal speed; a heavy bomber at cruising speed uses 200 gallons of gasoline and a fighter plane needs 100 gallons in an hour; monthly supplies for each one of our fighting men on a world battlefront use 1½ tons of shipping space, while the ships that carry these supplies to, say, North Africa average 214,000 gallons of heavy fuel oil for the round trip to Casablanca.

Reflecting sharp emphasis on the increased mechanization of war, the quantity of petroleum and petroleum products shipped overseas in the first 12 months of this war was more than 80 times that shipped across in the first 12 months of the last war. Instead of horses, mules, and forage, our overseas forces now get trucks, tractors, bulldozers, gasoline and oil.

Tidal Waves Ahead

A WAVE of home-buying will sweep over the country the instant war stops, predicts Richard Saunders in *Nation's Business*. This wave will total about a million units and will come chiefly from middle-aged heads of families.

A second wave will come from housing demands of demobilized service men, but this will be slower and probably will fall short of the million-unit mark. Coincident with both waves, the magazine says, will be a tidal swell of improvement and modernization work that may top, in volume, all new housing demands.

Post-war housing will be more functional. Clothes closets replete with shelves and drawers, and bathroom units probably will be pre-fabricated. Living rooms are likely to have sliding panels so corners may be closed off into dining alcoves or studies.

Natural Gas Story in "Popular Mechanics"

A STORY of outstanding interest to natural gas men written by Dr. Gustav Egloff, director of research, Universal Oil Products Company, appeared in the August "Popular Mechanics" magazine. Entitled "You Can Do It Better with Gas," the article describes the many chemical derivatives of this great natural resource as well as its use as an essential wartime fuel. Reprints of the article were mailed by the American Gas Association to all natural gas members.

IT'S THE WEATHER

(Continued from page 360)

ters and thermographs. Other factors include the number of hours that may be read off a thermograph chart while in use (at 8 A.M. for instance is there still enough of the chart in view to permit reading the low temperature for all hours of the previous night?), the personnel of the stations, whether readings can be and are or are not made at all hours, especially to determine if a low temperature occurs before or after midnight, the time of maximum and minimum recordings whether only on the hour or at random times.

The standardization of methods, instruments and general procedure by the Weather Bureau is considered essential to establishing more reliable weather information over the nation as a whole. It is hoped that official degree day figures will also be made a part of the Weather Bureau service. Reactions on the part of representatives of the Bureau serving as committee members are very encouraging and the Committee is confident that sufficient national interest and industry support will bring about the desired results.

Technical Advisory Group

The N.D.H.A. Joint Committee on Weather Statistics is fortunate in having the support and cooperation of a second national committee of importance, the Technical Advisory Committee on Weather Design of the ASHVE, which has a very comprehensive program. Commander T. H. Urdahl, U.S.N.R., is Chairman of this Committee. The work of this latter committee has much to do with the taking and recording weather data that will be helpful to the summer cooling and dehumidification industry. After sufficient field observations and weather experience is available to this committee they will no doubt develop a cooling or summer air conditioning mean paralleling the purpose of the 65° base used in heating. A report on the scope of the ASHVE Committee's program together with some of its accomplishments is given in the 1941 report on Programs of the Research Technical Advisory Committees of the ASHVE.

Under war conditions much of the time of the Weather Bureau is being devoted to giving essential service to the Army and Navy. Modern warfare requires a rather complete and reliable weather service. It has been necessary for the Weather Bureau to employ hundreds of additional people to provide essential information to the armed forces. Much of the data being developed is the same as that which is now and will be required by aviation, maritime, heating and ventilating and air conditioning industries. Thus uniform methods of obtaining and analyzing weather data are being developed under the impetus of war.

With a more complete service thus being developed, industry should cooperate in every way possible in recommending to the United States Government desired additions and changes in information being obtained from Weather Bureau Stations. In the future, opportunities will undoubtedly present themselves to support required legislation as may be necessary to enlarge the activity of the Weather Bureau. Those responsible for the operation of the Weather Bureau are more than willing to accommodate but they will need the support of the Army, Navy and all industry to obtain the desired objectives.

Peoples Gas Elects Nagler Vice-Pres.

K. B. Nagler

ELECTION of Karl B. Nagler as vice-president in charge of operation of The Peoples Gas Light and Coke Co., Chicago, to succeed the late W. G. Rudd was recently announced by G. A. Ranney, board chairman. Prior to his new assignment, Mr. Nagler had been assistant vice-pres.

As was the case with his predecessor in office, Mr. Nagler started his gas company career as a laborer. With the exception of a 10-month break in service during the last war, when he joined the fighting forces of Uncle Sam, Mr. Nagler's 28 years with the company were spent in the operating end of the business. He held numerous positions in various production and distribution stations before coming to the engineering department as an engineer in 1926. In 1927 he was made a system development engineer. In 1937 he was promoted to the executive office and has been successively executive engineer, assistant to the vice-president, and (in December, 1941) assistant vice-president.

One of Mr. Nagler's first official duties was to announce a series of promotions in the operating division. The position of executive engineer was reestablished as of July 1, and J. J. Novy was appointed to fill that position, reporting to the vice-president in charge of operation.

Martin I. Mix was appointed operating engineer succeeding Mr. Novy, to assist the chief operating engineer in the administration of the operating division.

J. B. Craven, as chief operating engineer, will act in place of the vice-president in charge of operation in case of his absence.

Ernest G. Campbell was appointed general superintendent of distribution to succeed Mr. Mix.

Elmer F. Schuldt became assistant general superintendent of distribution, to succeed Mr. Campbell.

Peter G. Bruck was named superintendent of central district shop to take the place of Mr. Schuldt.

John H. Heil was transferred from assistant superintendent of the meter repair shop in charge of the tool repair, appliance repair, and delivery group to the more active field of assistant superintendent of north district.

Helium Reduces Hazards

LABORATORY and clinical investigations of the Bureau of Mines and cooperating groups have disclosed that the addition of helium will render certain anesthetic mixtures noninflammable and prevent explosions and fires which in some instances have caused fatal accidents in operating rooms, Dr. R. R. Sayers, Director of the Bureau, stated July 15.

The studies were undertaken jointly with the St. Francis hospital at Pittsburgh, Pa., and a committee under the direction of the Department of Anesthesia and Industrial Hygiene, School of Medicine, University of Pittsburgh. Contributions from manufacturers of anesthesia equipment and supplies and a grant from the International Anesthesia Research Society aided the investigation.

A copy of the publication, Technical Paper 653, "Explosion Hazards of Combustible Anesthetics" by G. W. Jones, R. E. Kennedy, and G. J. Thomas may be obtained for five cents by writing to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

FOUND AT LAST

WIFE—You seem disappointed with your parcel.

HUSBAND—Yes, I answered an advertisement for a device to keep down gas bills and they sent me a paperweight.

Commercial Gas Cooking Wall Chart Widely Distributed

A PRACTICAL wall chart covering the care and maintenance of all the standard commercial cooking and baking gas appliances, and many special appliances as well, has been placed in large and small kitchens throughout the country. The chart was prepared by Fenton Kelsey Co., Madison, Wis., and was carefully checked by representatives of the Industrial and Commercial Gas Section before publication.

Gas utilities and manufacturers of commercial cooking and baking appliances have been active in distributing it and already, over 50,000 have been distributed. A high proportion are reported to be in actual use in army camps, navy schools, war plants, hospitals, schools, restaurants and hotels.

One army camp alone employs 200 of the wall charts on the care and maintenance of gas volume cooking equipment. They were furnished to this camp near Indianapolis, Indiana, at the request of the posts' engineers office. It was the engineers' opinion that, since much of the kitchen help was not familiar with the gas equipment and since it could not be readily replaced, a wall chart should have a place in the picture in order to prolong the life of the equipment.

These charts were furnished, also, to the Navy School at the University of Minnesota after a request for information contained on the charts, to be used as a guide for instruction to the student cooks.

In Dallas, Texas, as another example, reports indicate many of the operators are following the suggestions given on the charts religiously and have issued instructions that suggestions given in the chart must be followed out.

This chart also is the basis of an article by Miss Mary Farnam, cafeteria superintendent of the Cleveland Heights (Ohio) Board of Education.

Since this chart appeared in the October issue of *Cooking for Profit* many requests for it have not only come from gas companies but manufacturers, dealers and consumer groups, such as the American Hotel Association. Based on the experience to date these definite comments can be made on the chart:

I. It can be best delivered to users of gas appliances in three ways:
   (a) By mail.
   (b) By service men or other employees of gas company.
   (c) By commercial representatives.
      1. This is best manner of distribution though both the others are effective.
      2. Have gas man put it up himself wherever possible.

II. The chart will be well received and the guidance for new help angle should be stressed (as well as the obvious care of equipment).

III. In institutions, Army camps, Navy schools and other large establishments one chart at least is needed for each separate kitchen.
   1. In large kitchens more than one can well be used.

This chart is still available and may be obtained through the Fenton Kelsey Company or through Roy W. Wright's Food Service Equipment Committee, American Gas Association, 420 Lexington Ave., New York, N. Y.

A.S.T.M. Report on Coal and Coke Tests

AN important contribution, approved at the A.S.T.M. annual meeting in Pittsburgh, developed under the auspices of A.S.T.M. Committee D-5 on Coal and Coke was the new tentative test for determining the free swelling index of coal, results of which may be used as an indication of the coking characteristics of the coal when burned as a fuel.

This small scale laboratory test is not designed to determine expansion of coals in coking ovens. However, the committee included in its report six proposed methods of test for determining the basic properties of coals and for evaluating expansion and pressure characteristics in coking ovens during carbonization. By publishing the methods the committee hopes to stimulate their greater use so that they can be more adequately evaluated. One of the methods was the subject of a technical paper at the meeting by Messrs. Soth and Russell on the subject "The Gieseler Method for Measurement of the Plastic Properties of Coking Coals."

The committee is including in its widely used Standard Methods of Laboratory Sampling and Analysis of Coal and Coke (D 271-42) a statement indicating that a limit of 30 days should be set on the time between sampling and analysis of coal if the B.t.u. is an important consideration.

Housewife's Lament

OH, I cannot be a WAAC, or WAVE,
a WAF, or e'en a WAG,
I cannot wear a uniform, a button, or a tag,
I cannot stand with others at attention, or salute
I'm not the least bit glamorous, I'm certainly not cute!
I cannot march in smart parades, or, waiting for inspection
I cannot make the headlines, or the rotogravure section!
Alas! I'm but a housewife, I can only save the fat,
Or flatten cans, or buy a bond, or wear my last year's hat,
Or plan a menu meatless, with a sugarless dessert.
As with a girdle rubberless I find myself begirt!
The WAACS, and WAVES, and WAFS, and WAGS, may work from sun to sun,
Alas! the housewife's housework is a thing that's never done!
(Also, alas! the housewife's lot is humble, and obscure.
In war or peace, it's very dull, and quite without allure.)
Though uniform I do not wear, no button, and no tag.
And never will be photographed as I salute the flag,
The WAACS, and WAVES, and WAFS, and WAGS, I envy, but defy
To see who does the hardest work—pray is it they—or I?

—AMY GRIEF in *The Kalends.*

Personnel Service

SERVICES OFFERED

Manager available at once, draft exempt. Experience covers all branches of both natural and manufactured gas. Graduate M.E. and registered P.E. **1463.**

Technical graduate. Fourteen years in gas utility **operation** and **plant construction.** Supervisory experience in all phases of carbureted blue gas manufacture, distribution and utilization. Desires connection in gas or associated industry affording real opportunity to apply technical and analytical ability towards definite goal or engineering development. Draft exempt (36). **1464.**

Chemist—B.S., desires permanent position with gas utility or manufacturer in Middle Atlantic States. 26 years' analytical experience in laboratories of manufactured gas industry adapting and developing methods for plant control, supervising personnel analyzing raw materials, by-products, and all purchased supplies; above draft age. **1465.**

Prepare now for large volume Post-War Construction in new building field. **Architect** and **builders' contact** man; unusual record with one of the largest Eastern utilities; draft exempt; desires position enabling him to plan, prepare and execute details for adequate, proper piping and installation systems in new and altered buildings. **1466.**

Industrial Gas **Sales Engineer,** M.E. Also experienced in all branches of the utilization and sale of gas. Experienced **Power Engineer** in the application of electricity and in the competition of private power plants. Desire position with utility manufacturer or consultant. **1467.**

POSITIONS OPEN

Superintendent for medium size manufactured gas department of combination company. Good technical education and practical experience all branches desired; excellent opportunity for right man to "grow" upward in the organization. Eastern location. Give full details of water gas production and distribution experience including Selective Service status. **0381.**

An **auditor** experienced in public utility accounting, insurance, taxes, etc. with executive ability and the capacity to advance. Position open is with a natural gas company located in the middle west. Give age, draft status, experience, salary expected, etc. **0382.**

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